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AIR POLLUTION-A NATIONAL PROBLEM

Public Health Service
Washington, D.C.

1962

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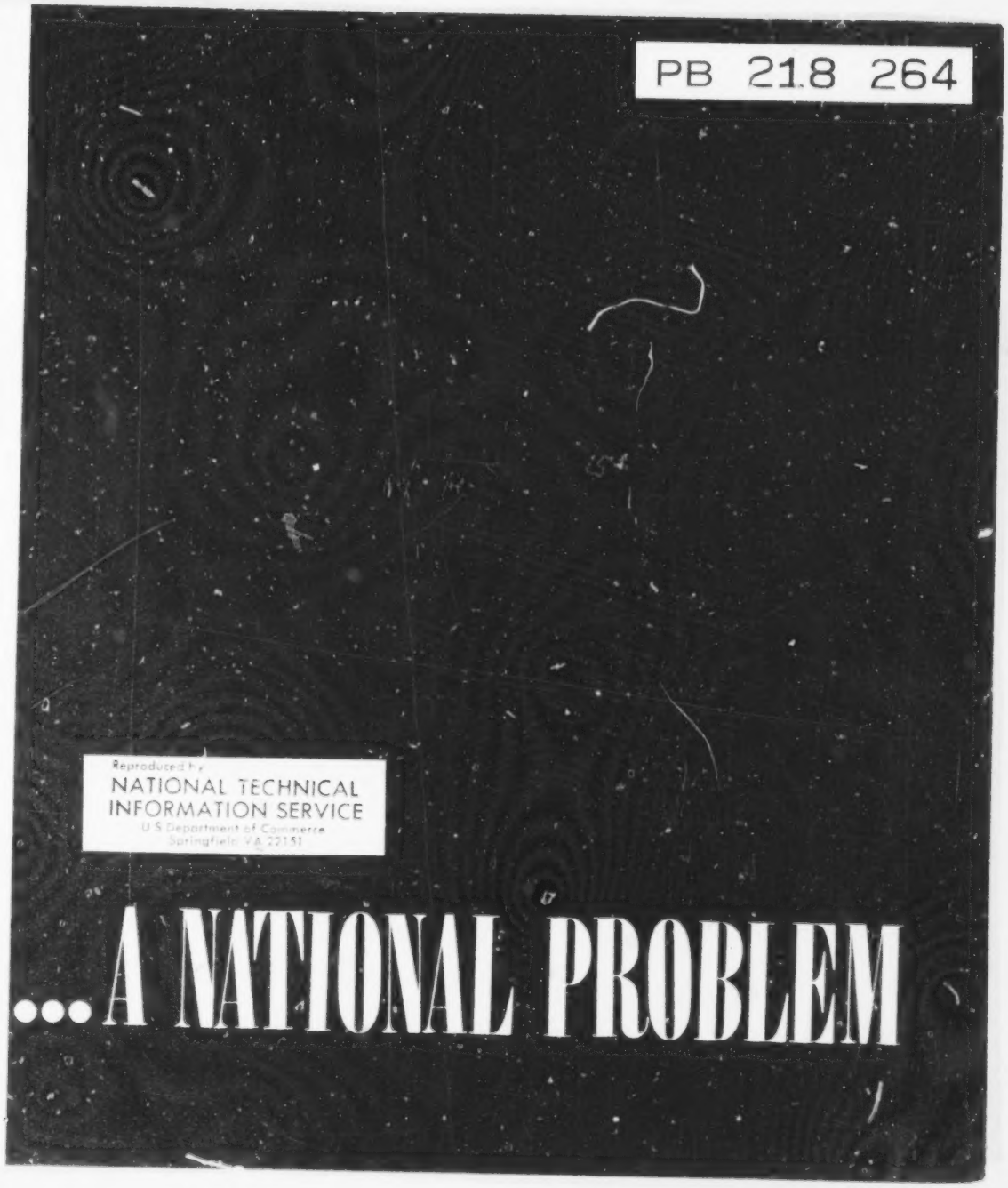
HEALTH, EDUCATION, AND WELFARE
Public Health Service



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AIR POLLUTION ... A NATIONAL PROBLEM

Prepared for the

NATIONAL CONFERENCE ON AIR POLLUTION

December 10–12, 1962 • Washington, D.C.

LET'S CLEAR THE AIR!

Public Health Service Publication No. 975

AIR POLLUTION ... a national problem

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Division of Air Pollution
Washington 25, D. C.

I

PREFACE

Air pollution has been defined as the presence in the outdoor atmosphere of substances in concentrations sufficient to interfere directly or indirectly with man's comfort, safety, or health, or the full use and enjoyment of his property. This booklet presents information about some of the many factors which influence the nature and extent of our Nation's air pollution problems. Because air pollution is immense in scope and complexity, this booklet cannot be exhaustive. However, it does highlight the several major aspects of the problem. Included are maps which graphically pinpoint major potential sources of air pollutants in the 50 States. Also shown are the activities of governmental agencies toward the goal of attaining more effective control of air pollution.

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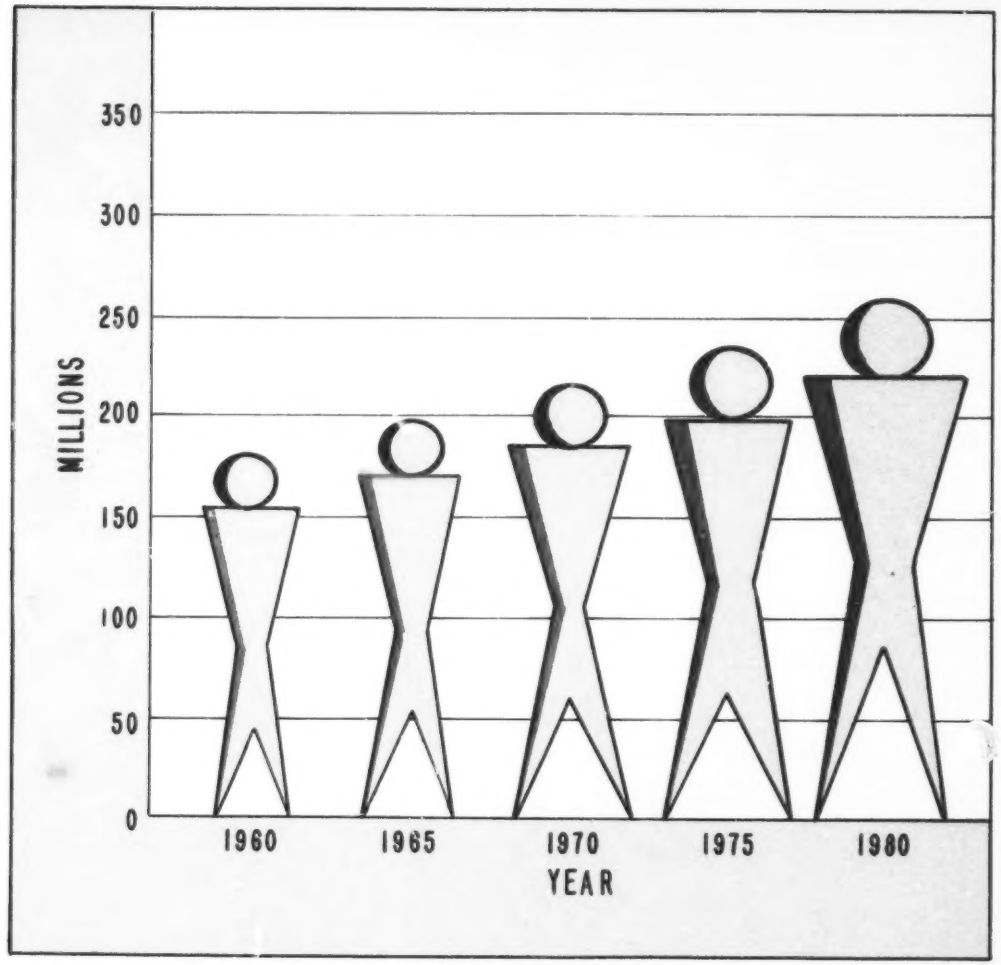
The Nation's air pollution problem:

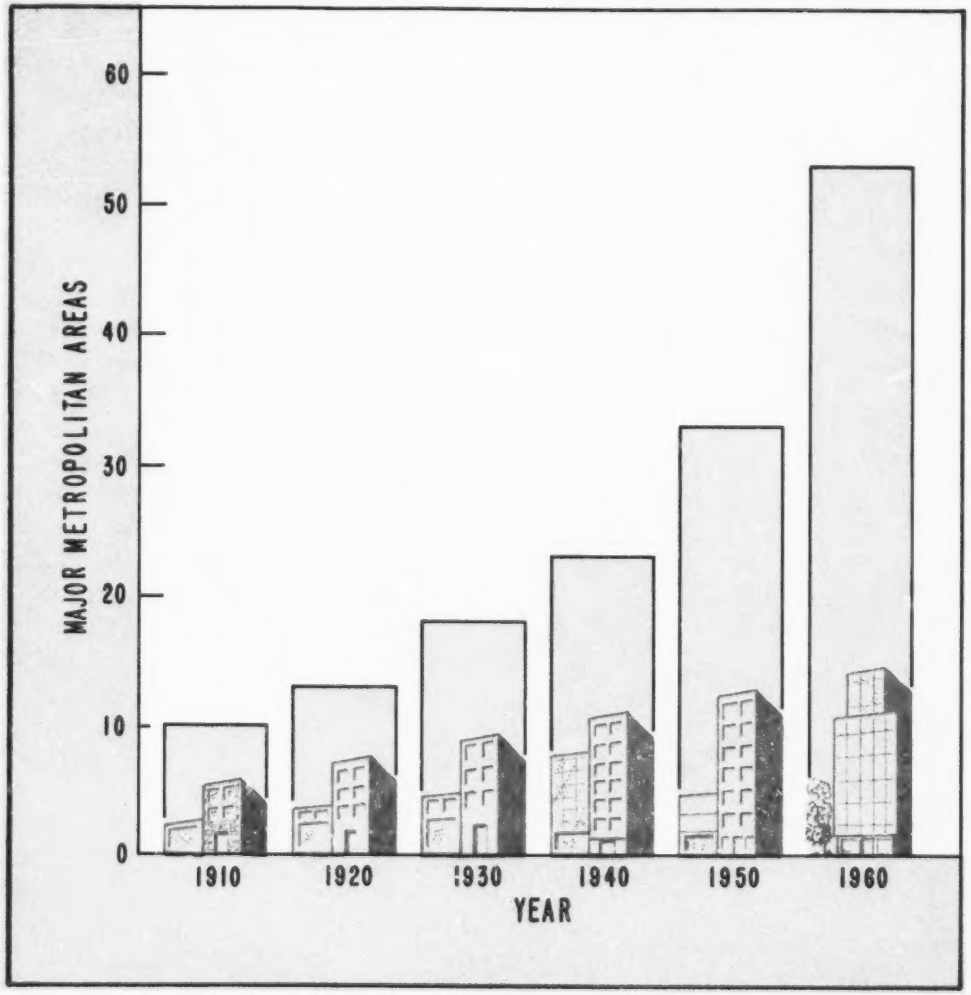
Why we have it . . .

THE POPULATION IS GROWING

The Nation's population in 1960 was about 180 million. By 1980 it will jump to approximately 260 million, a 45 percent increase. Every year our population increases enough to furnish inhabitants for two new cities, each larger than Chicago or Los Angeles. This means we will have more homes to heat, more automobiles to drive, more factories to operate, more refuse to dispose of, and more power to generate. All of these activities of our expanding population will result in more air pollution.



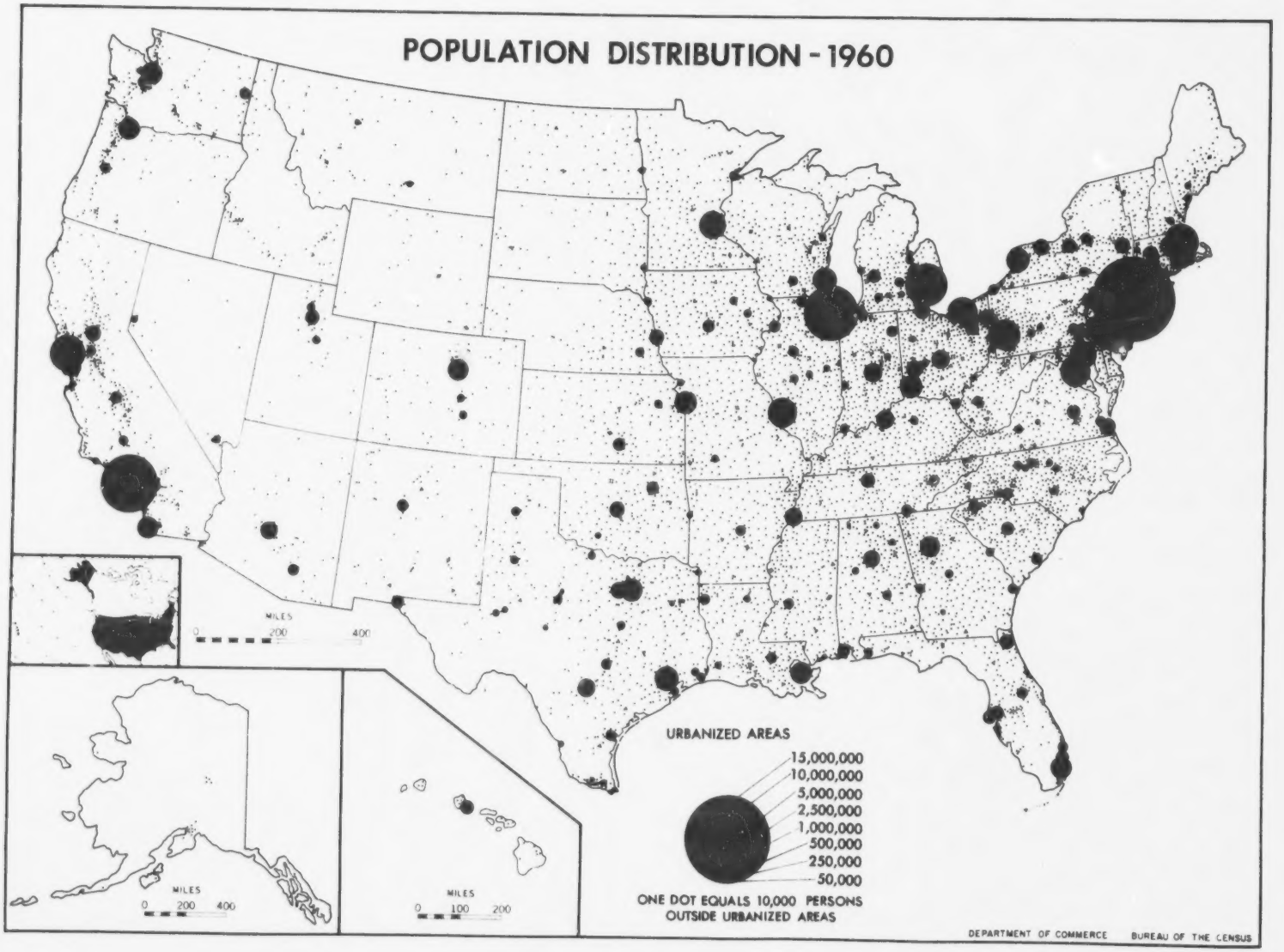
THE NUMBER OF BIG CITIES IS INCREASING



During the years 1940 to 1960, the number of metropolitan areas with populations of 500,000 or more increased from 23 to 53. As the number of people living in a metropolitan area increases, air pollution problems become more severe at a rate relatively greater than the rate of increase in population. Every metropolitan area with a population of a million or more is considered to have a major air pollution problem. About 70 percent of the metropolitan areas with a population of 500,000 to 1,000,000 have an air pollution problem of major proportions and the remaining 30 percent have problems of moderate severity. As cities grow, air pollution will increase unless action is taken to prevent it.

THE NATION IS BECOMING MORE URBANIZED

More than two-thirds of the Nation's people live in urban areas. Fifty major metropolitan areas provide homes for more than 40 percent of our citizens. Growth during the period 1940–1960 increased our urban population by 52 million people, or 68 percent, while the rural population decreased by 3 million, or 5.5 percent. As cities are born, air pollution problems arise, and as cities grow, these problems become more severe. The number of urban areas with populations of 2500 or more increased from about 2267 in 1950 to about 2973 in 1960. Each of these 2973 urban areas now has some degree of air pollution problem. And the number will climb higher and higher.


POPULATION DISTRIBUTION - 1960
MILES
0 200 400
MILES
0 200 400
MILES
0 100 200
URBANIZED AREAS
15,000,000
10,000,000
5,000,000
2,500,000
1,000,000
500,000
250,000
50,000
ONE DOT EQUALS 10,000 PERSONS
OUTSIDE URBANIZED AREAS
DEPARTMENT OF COMMERCE BUREAU OF THE CENSUS

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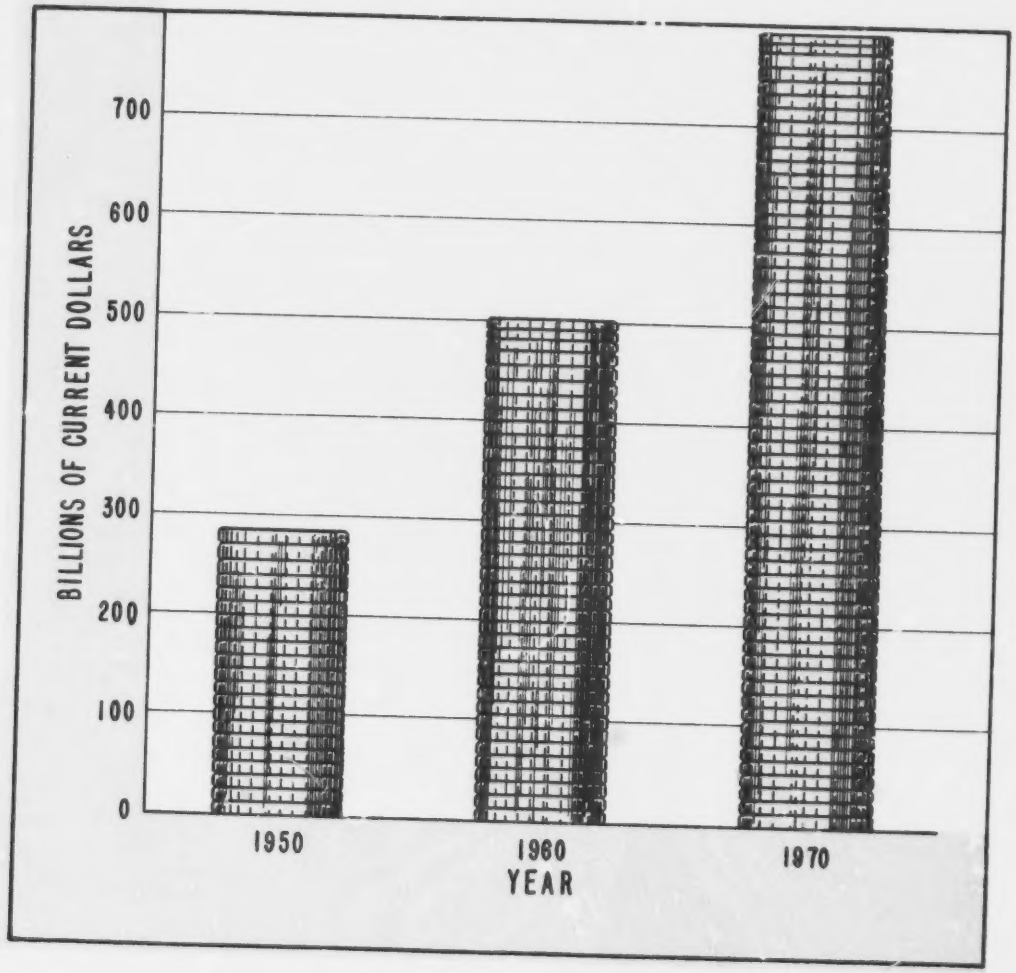
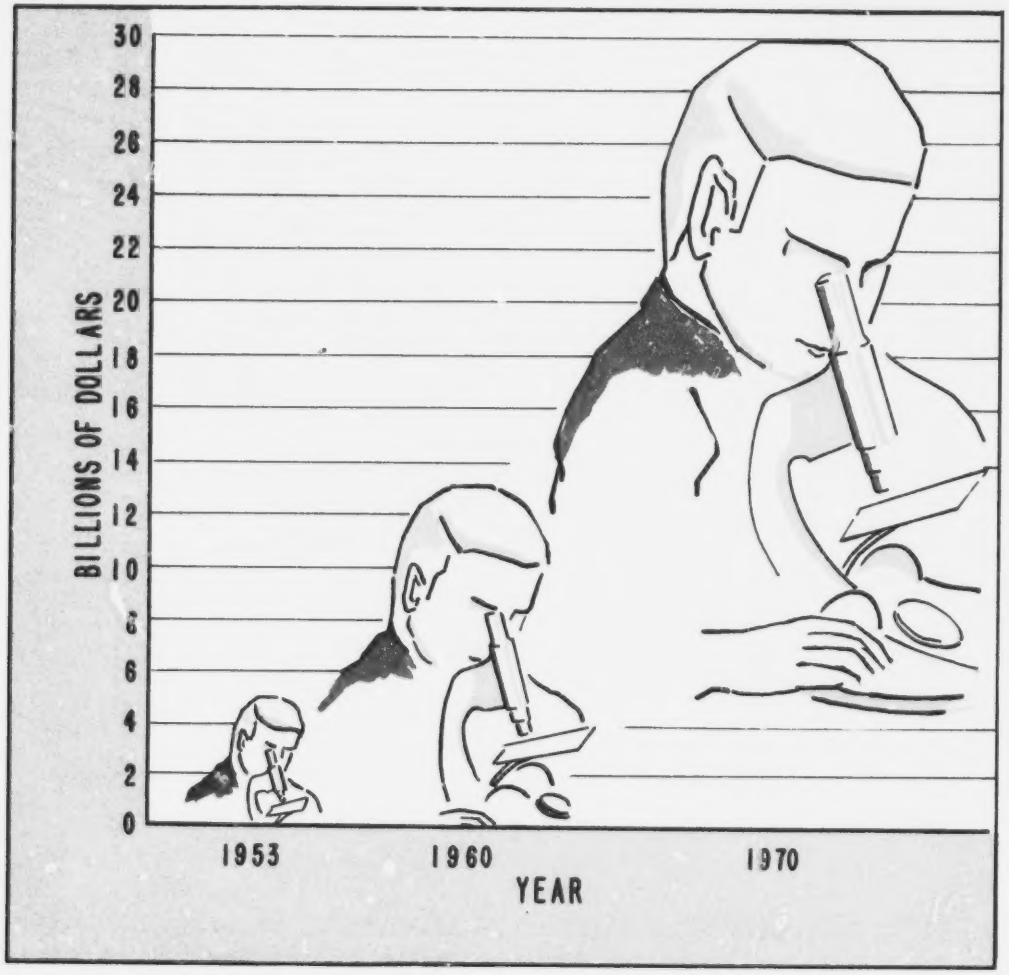
THE NATIONAL ECONOMY IS EXPANDING

The Gross National Product, an index of the Nation's total expenditures for all goods and services, was at the $500 billion level in 1960. By 1970 it may climb to about $800 billion. This 60 percent increase in commercial, industrial, and individual activities will result in a corresponding increase in potential air pollutants. Unless preventive action is taken, these pollutants will be added to those that already foul our limited air supply.



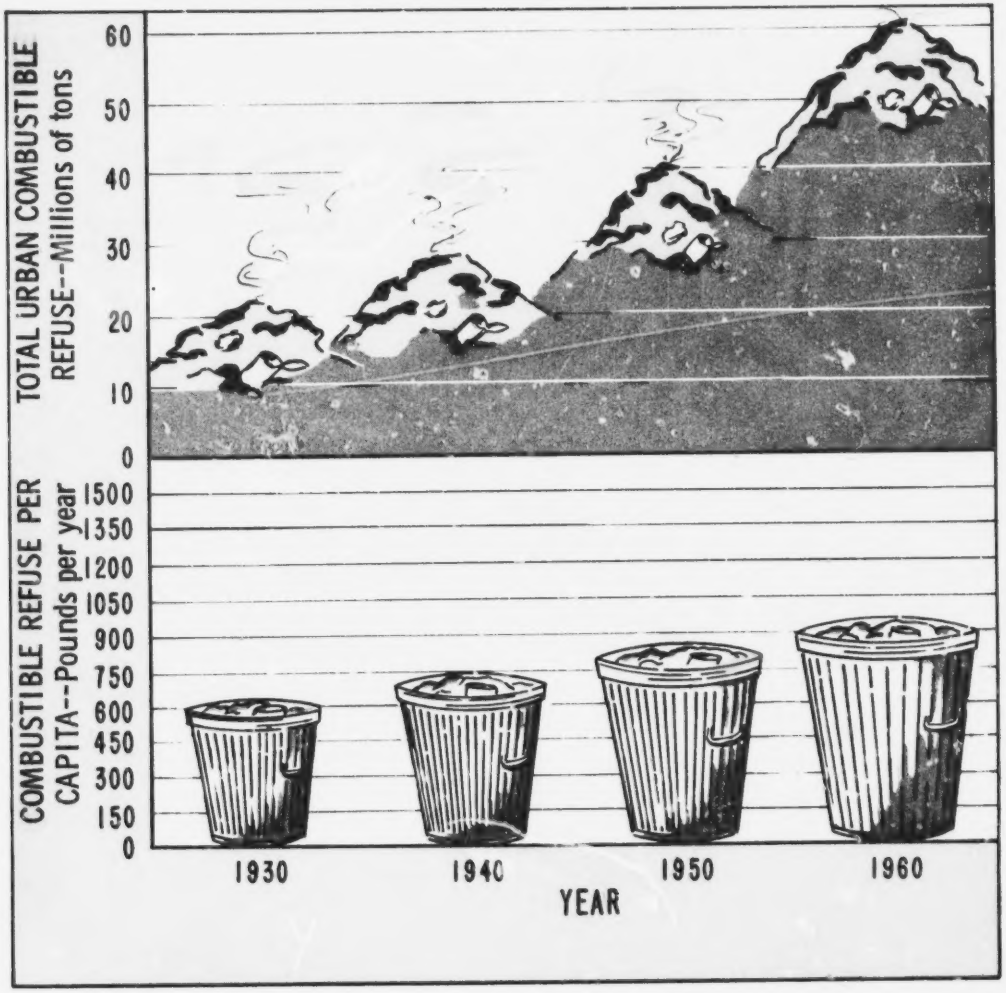
EXPANDING TECHNOLOGY CAUSES A GREATER VARIETY OF POTENTIAL AIR POLLUTANTS



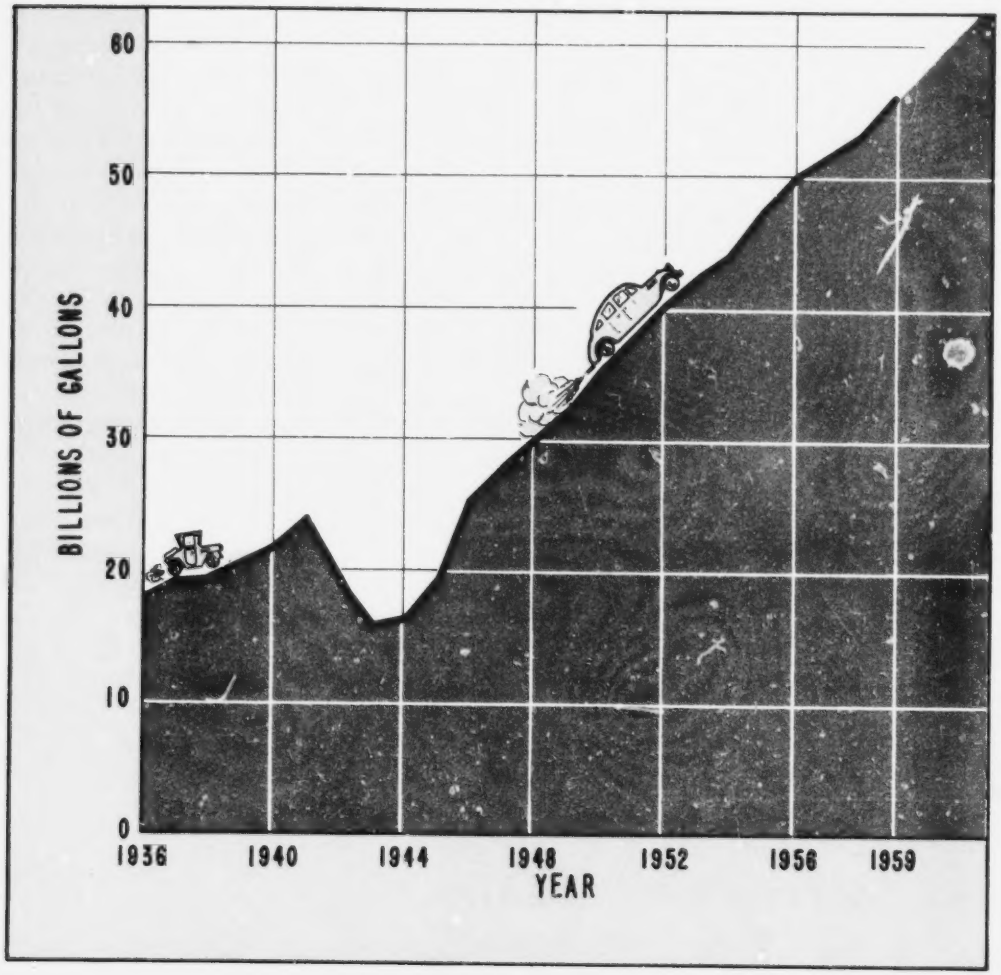
Expenditures for research and development are expected to increase from $13 billion in 1960 to about $30 billion in 1970. As a result, industries and their many new products and processes will take their place in our heavily industrialized economy. The chemical industry alone markets more than 400 new products every year. While industries will provide more jobs and a higher standard of living, they will also, as potential sources of new air pollutants, pose a threat to air quality. Our air resources must be protected from the ever-mounting variety and quantity of pollutants.

WASTE DISPOSAL IS A MOUNTING PROBLEM

The quantity of wastes produced and the methods used for their disposal have an influence on air pollution problems. The amount of combustible refuse arising from our daily living has increased. Burning of wastes from demolition of old buildings and burning of combustible parts of junk auto bodies often cause severe air pollution. Burning dumps cause air pollution problems in about 25 percent of our urban communities. About two-thirds of our cities employ open dumps for disposal of refuse. Open burning of refuse on domestic, commercial, and industrial premises is a common practice that too often causes air pollution problems of significant proportions. Waste disposal methods that minimize emissions of air pollutants must be more widely used.

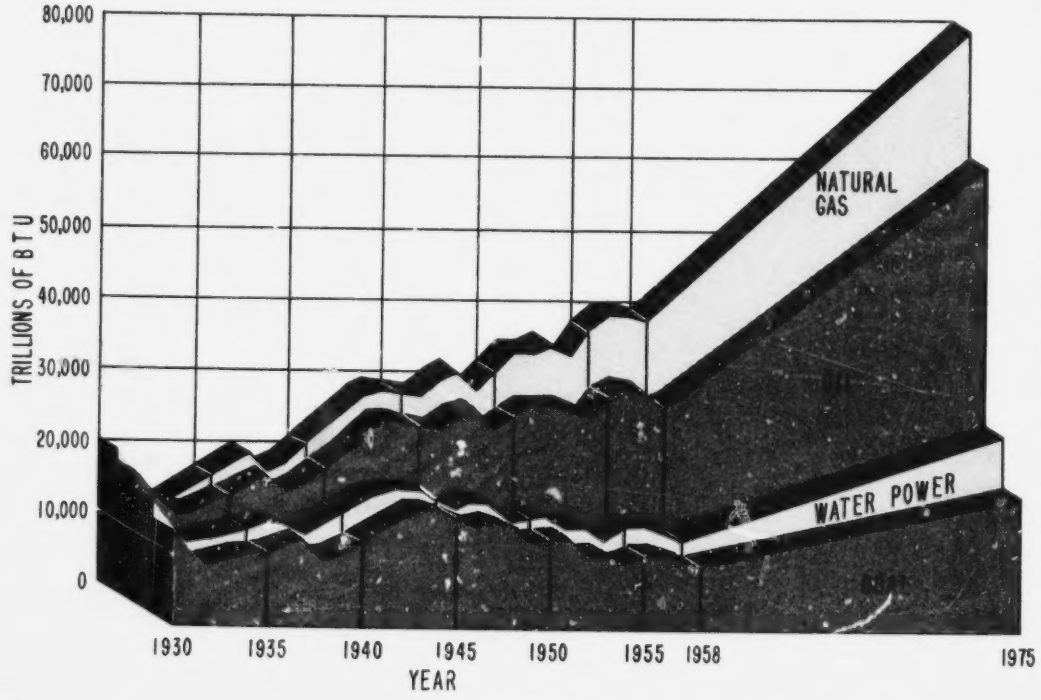


MOTOR VEHICLE FUEL CONSUMPTION IS RISING



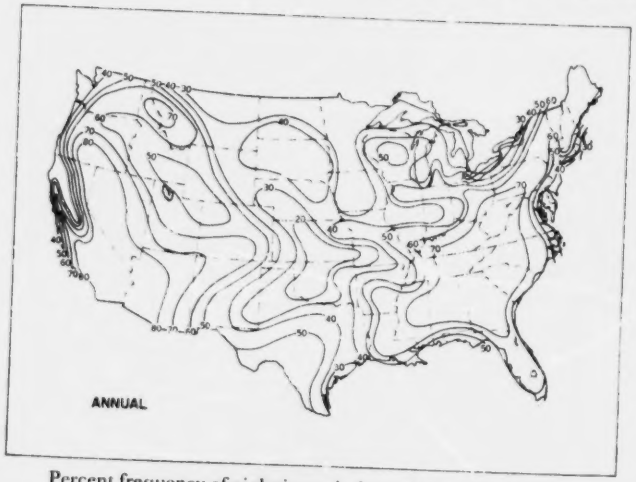
The number of road vehicles, the miles traveled per vehicle, the number of automobiles per family, and the use of motor vehicle fuel have all increased enormously in the last three decades. There were 32.4 million road vehicles in 1940, 74 million in 1960, and 120 million are expected in 1980. Vehicle miles traveled—728 billion per year in 1960—is expected to soar to 1277 billion in 1980. In 1936 almost 20 billion gallons of fuel were consumed each year; today approximately 60 billion gallons are burned annually by our automobiles, trucks, and buses. Much of the motor vehicle use occurs in urban areas (47.6 percent in 1960) and such use is expected to reach nearly 61 percent in 1980. The combustion products of motor vehicle fuels and the vapors that escape in the handling of these fuels are significant factors in many community air pollution problems.

ENERGY CONSUMPTION IS SOARING

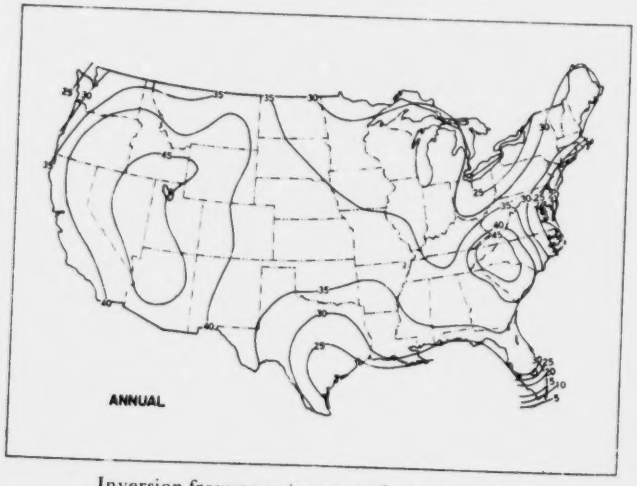


Our rising standard of living and increasing industrialization require more and more energy. Total per capita energy consumption is expected to increase to more than 300 million BTU's per year in 1980 from the present 250 million. This, coupled with increasing population, will nearly double the total energy use in the next 20 years. Most of this energy will result from combustion of fuels, although water power will provide some and a small amount will come from nuclear reactors. This vast increase in use of fuels will result in a corresponding increase in air pollutants generated. Effective control methods must be used to prevent the release of these pollutants into the air.

ADVERSE METEOROLOGICAL CONDITIONS CAN CAUSE A BUILD-UP OF AIR POLLUTION CONCENTRATIONS



Percent frequency of nighttime wind speed (7 mph or less)



Inversion frequency (percent of total hours)

Certain meteorological conditions cause air pollutants to accumulate. At night, and sometimes during the day, low wind speeds (7 mph or less) provide inadequate horizontal air movement for large cities. If the air pollution is where air movement is restricted by surrounding hills or mountains, the problem is intensified.

A further complication is provided when there is a "temperature inversion" at or not far above the earth's surface. This is a recurrent upside-down condition of the atmosphere where temperature in a layer increases with height instead of decreasing. The most common cause is nighttime cooling of a stratum near the ground when there are light winds with little mixing and clear skies to permit the free radiation of surface heat. However, an inversion can also result or be intensified because of complicated large-scale meteorological processes usually associated with high atmospheric pressure. Within an inversion layer vertical atmospheric motions that normally might disperse pollutants are minimized, and sometimes an inversion layer hovering over a city will act as a lid. This keeps the contaminants from escaping upward, and upward is the only direction in which they can go when there is insufficient wind speed to disperse them horizontally.

Areas which have a high frequency of both low wind speeds and of inversions have the greatest potential for a build-up of air pollution concentrations.

AIR POLLUTION SAFEGUARDS ARE SELDOM USED IN PLANNING OUR CITIES

Climatological information, including wind direction data, may be used in planning and zoning and for locating major pollution sources so that the potential for air pollution problems will be minimized.

The behavior of stack plumes and ground concentrations of pollutants under different meteorological conditions can be scientifically estimated. These estimates can be used in design of control equipment, selection of stack height, and in establishing emission limits.

Special meteorological forecasts by the U.S. Weather Bureau and others may be used to schedule certain operations so that pollution emissions will be reduced during times when atmospheric conditions are not favorable for dispersion of pollutants.

Total number of days for which meteorological forecasts indicated conditions unfavorable for dispersion of pollutants: August 1960—July 1961.

The Nation's air pollution problem:

Where we have it . . .

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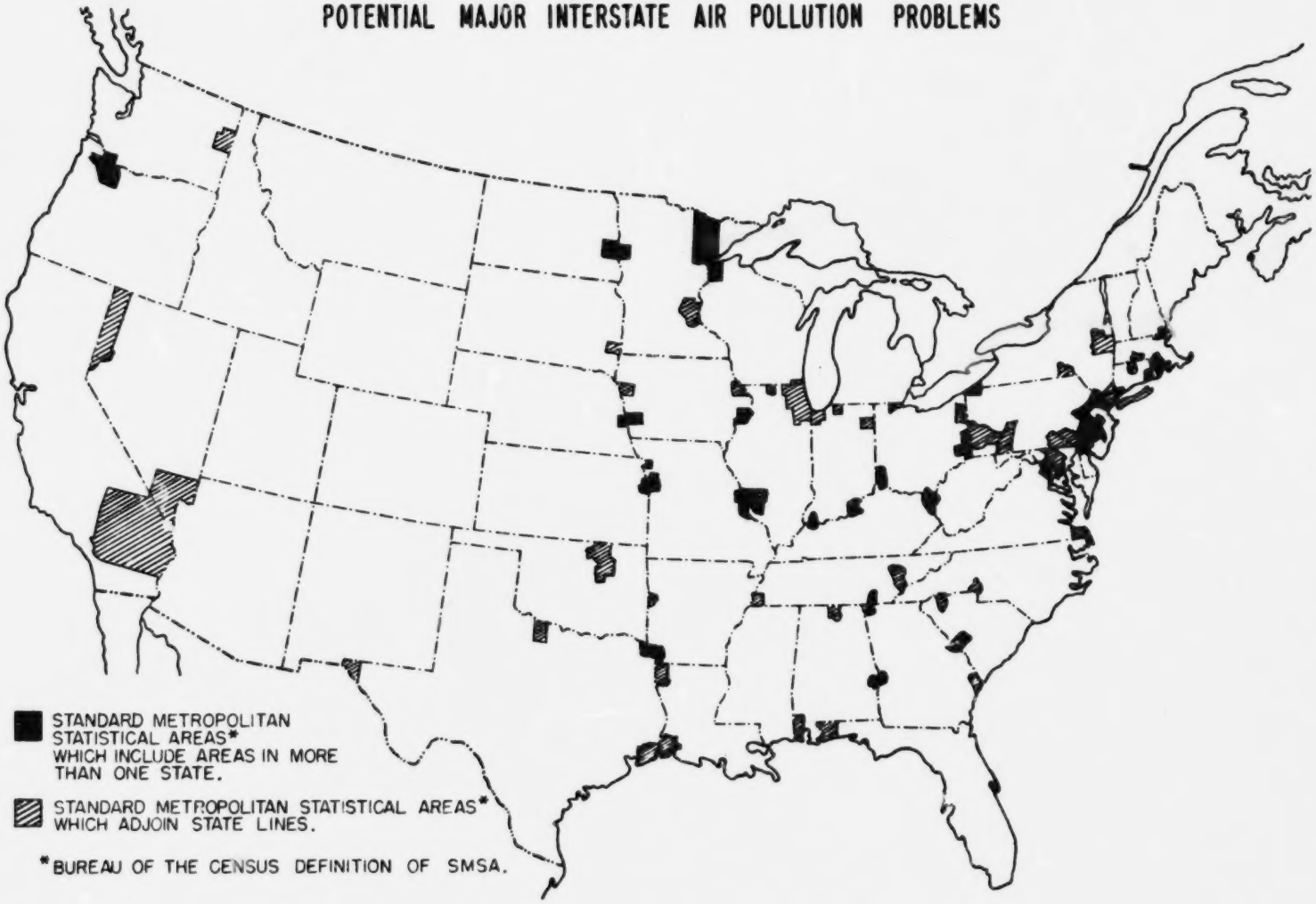
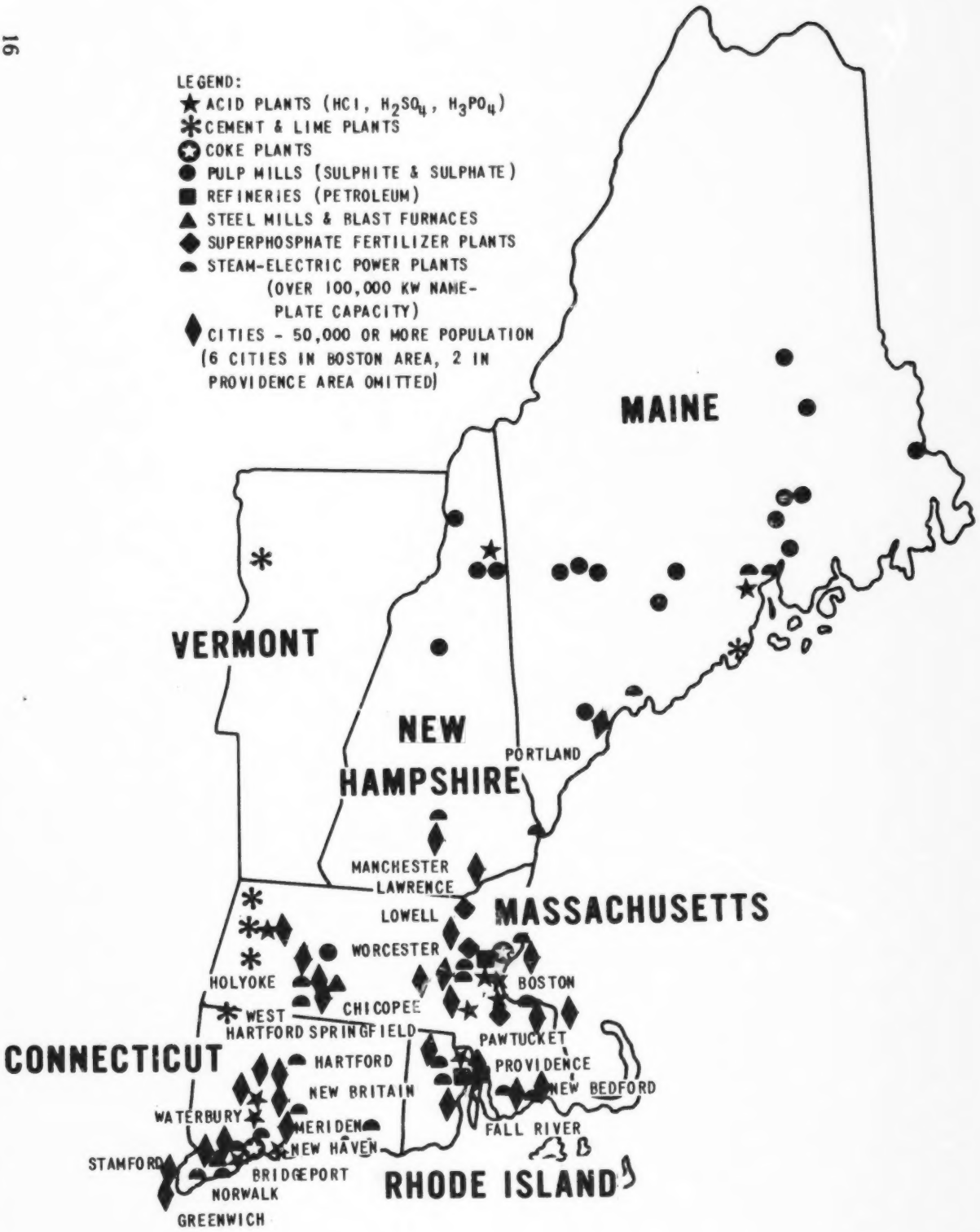
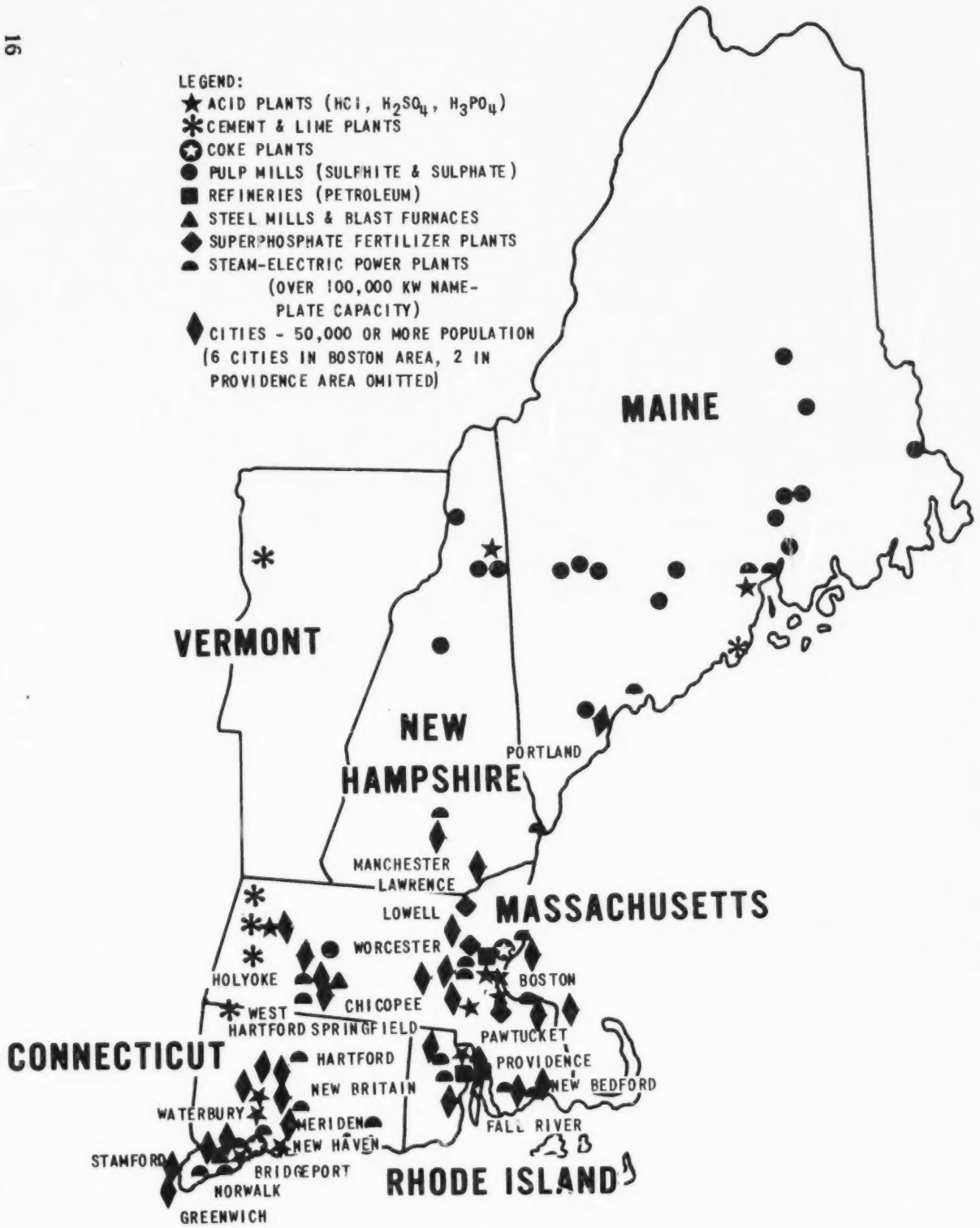
SOME INDICATIONS OF STATE AIR POLLUTION PROBLEMS

The maps on the following pages show the locations of the principal potential sources of air pollution in the Nation. Because of space limitations they cannot include all industrial sources which may contribute to the air pollution problem, nor do they show other major contributors of air contaminants, such as motor vehicles, home and apartment house incinerators, and municipal dumps. The maps, however, do illustrate the extent of the air pollution problem across the country.

OUR PRINCIPAL INTERSTATE AIR POLLUTION PROBLEM AREAS


POTENTIAL MAJOR INTERSTATE AIR POLLUTION PROBLEMS
STANDARD METROPOLITAN STATISTICAL AREAS* WHICH INCLUDE AREAS IN MORE THAN ONE STATE.
STANDARD METROPOLITAN STATISTICAL AREAS* WHICH ADJOIN STATE LINES.
*BUREAU OF THE CENSUS DEFINITION OF SMSA.


LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
COKE PLANTS
PULP MILLS (SULPHITE & SULPHATE)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAME-PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION (6 CITIES IN BOSTON AREA, 2 IN PROVIDENCE AREA OMITTED)
MAINE
VERMONT
NEW HAMPSHIRE
PORTLAND
MANCHESTER
LAWRENCE
LOWELL
MASSACHUSETTS
WORCESTER
HOLYOKE
BOSTON
CHICOPEE
WEST SPRINGFIELD
HARTFORD
PAWTUCKET
CONNECTICUT
HARTFORD
PROVIDENCE
NEW BRITAIN
NEW BEDFORD
WATERBURY
MERIDEN
FALL RIVER
NEW HAVEN
STAMFORD
BRIDGEPORT
RHODE ISLAND
NORWALK
GREENWICH


LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
COKE PLANTS
PULP MILLS (SULFHITE & SULPHATE)
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MASSACHUSETTS
WORCESTER
HOLYOKE
BOSTON
CHICOPEE
WEST SPRINGFIELD
HARTFORD
PAWTUCKET
PROVIDENCE
CONNECTICUT
NEW BEDFORD
NEW BRITAIN
WATERBURY
MERIDEN
FALL RIVER
NEW HAVEN
STAMFORD
BRIDGEPORT
NORWALK
RHODE ISLAND
GREENWICH

PATTERSON
CLIFTON
PASSAIC
BLOOMFIELD
E. ORANGE
JERSEY CITY
NEWARK
UNION
BAYONNE
ELIZABETH
WOODBRIDGE
TRENTON
CAMDEN
NEW JERSEY
ATLANTIC CITY
LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
COKE PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
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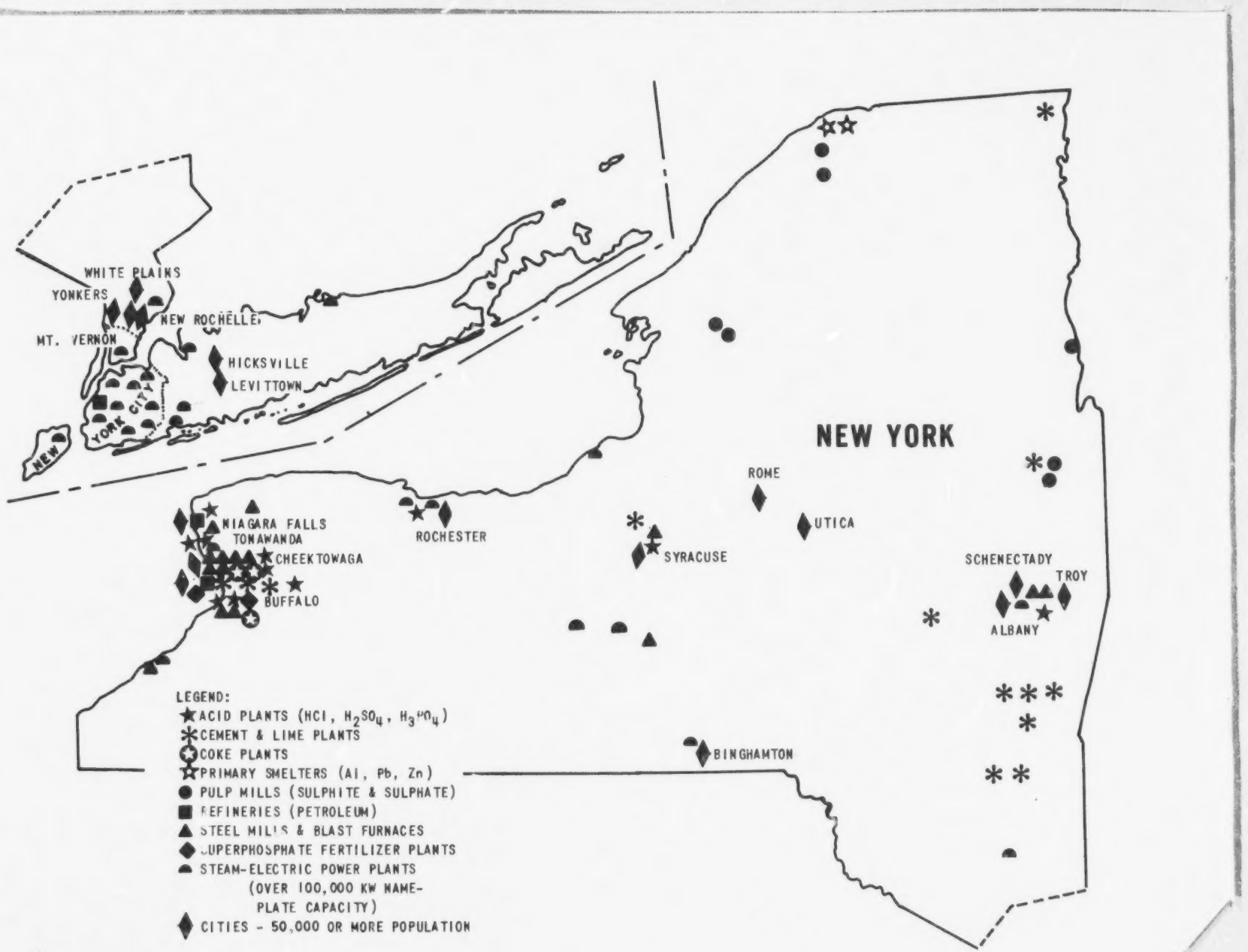
CITIES - 50,000 OR MORE POPULATION


NEW YORK
WHITE PLAINS
YONKERS
NEW ROCHELLE
MT. VERNON
HICKSVILLE
LEVITTOWN
YORK CITY
NEW
NIAGARA FALLS
TONAWANDA
CHEEKTOWAGA
BUFFALO
ROCHESTER
ROME
UTICA
SYRACUSE
SCHENECTADY
TROY
ALBANY
BINGHAMTON
LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
COKE PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
PULP MILLS (SULPHITE & SULPHATE)
REFINERIES (PETROLEUM)
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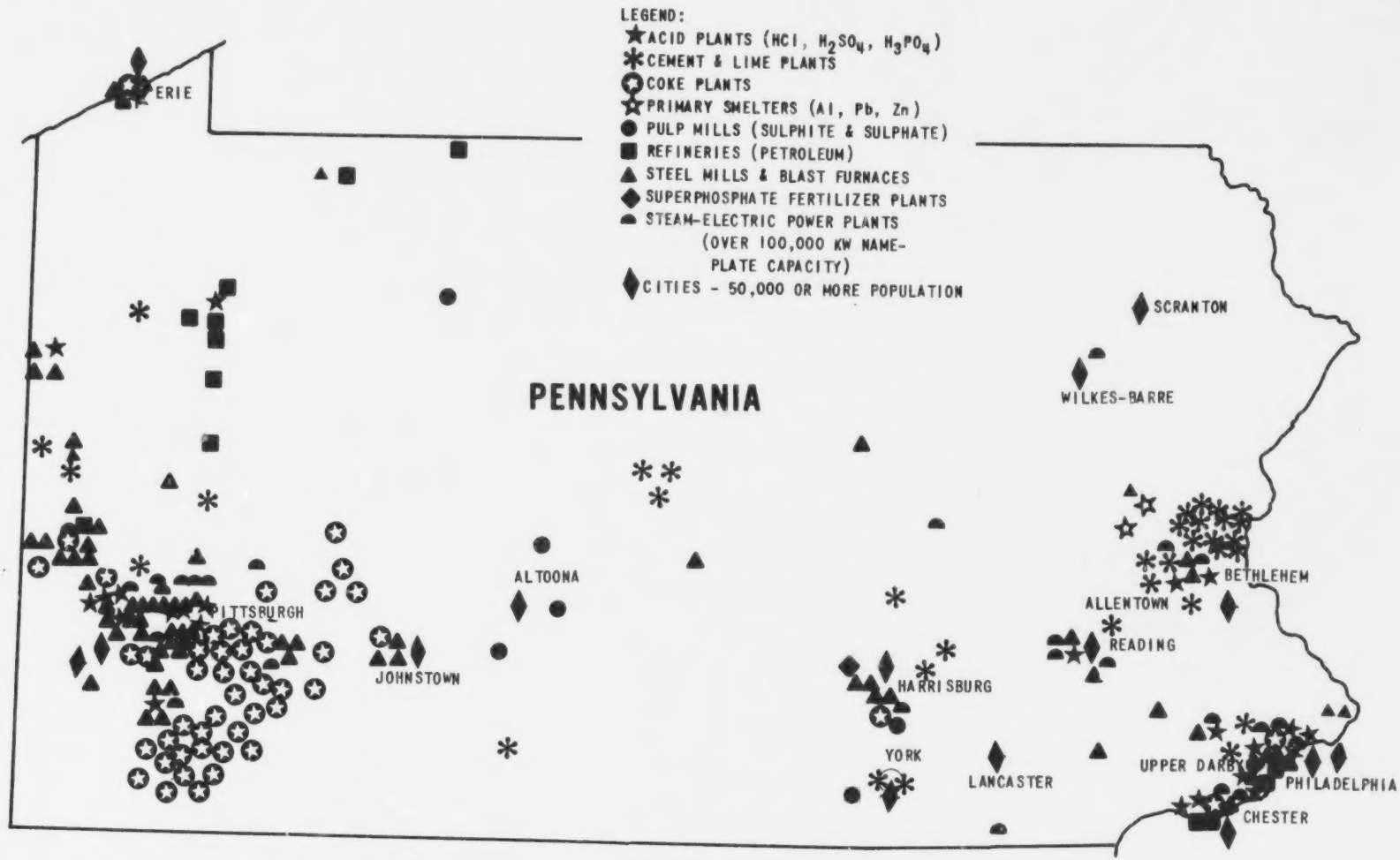
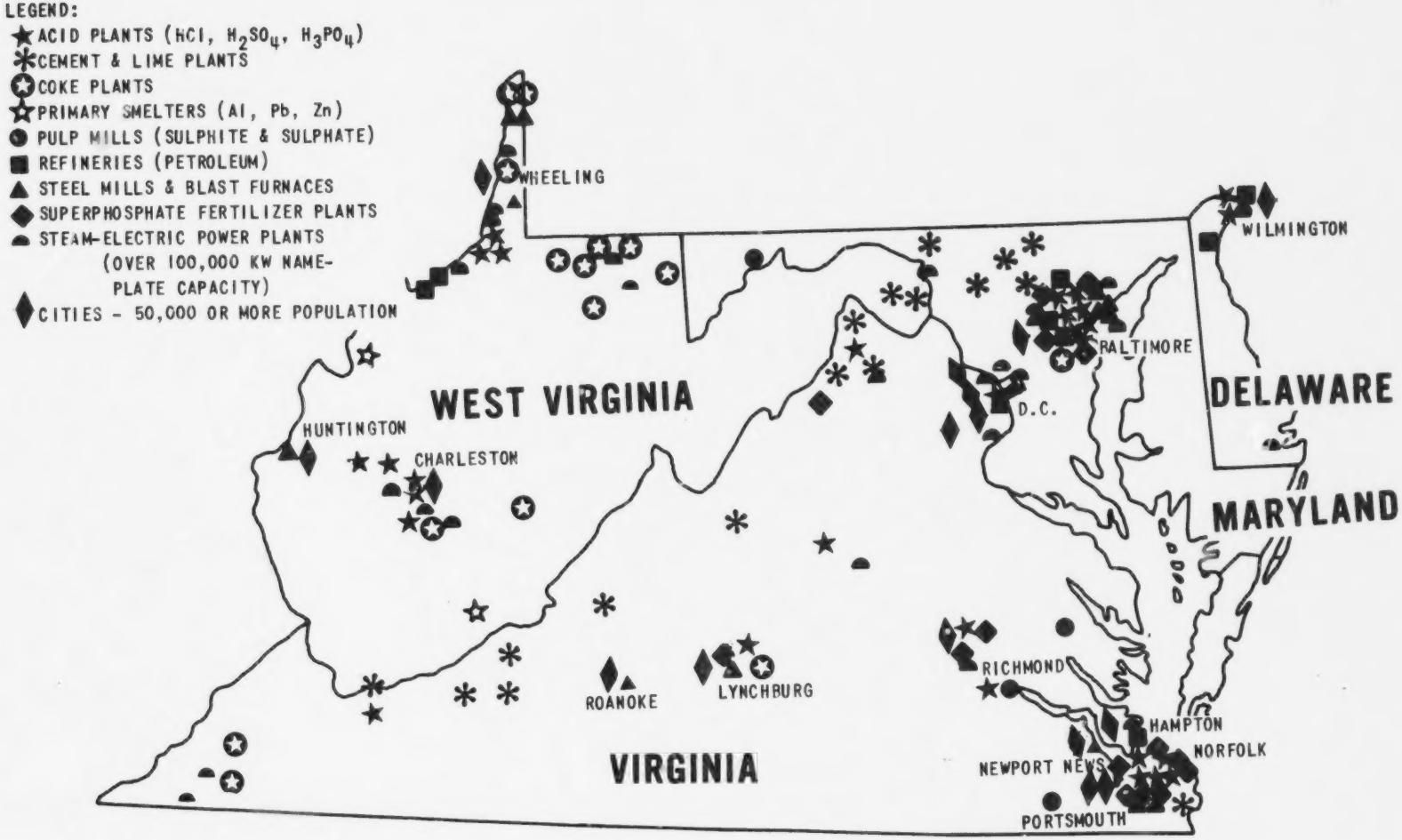

LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
COKE PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
PULP MILLS (SULPHITE & SULPHATE)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAME-PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION
PENNSYLVANIA
ERIE
PITTSBURGH
JOHNSTOWN
ALTOONA
HARRISBURG
YORK
LANCASTER
SCRANTON
WILKES-BARRE
BETHLEHEM
ALLENTOWN
READING
PHILADELPHIA
CHESTER


LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
COKE PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
PULP MILLS (SULPHITE & SULPHATE)
REFINERIES (PETROLEUM)
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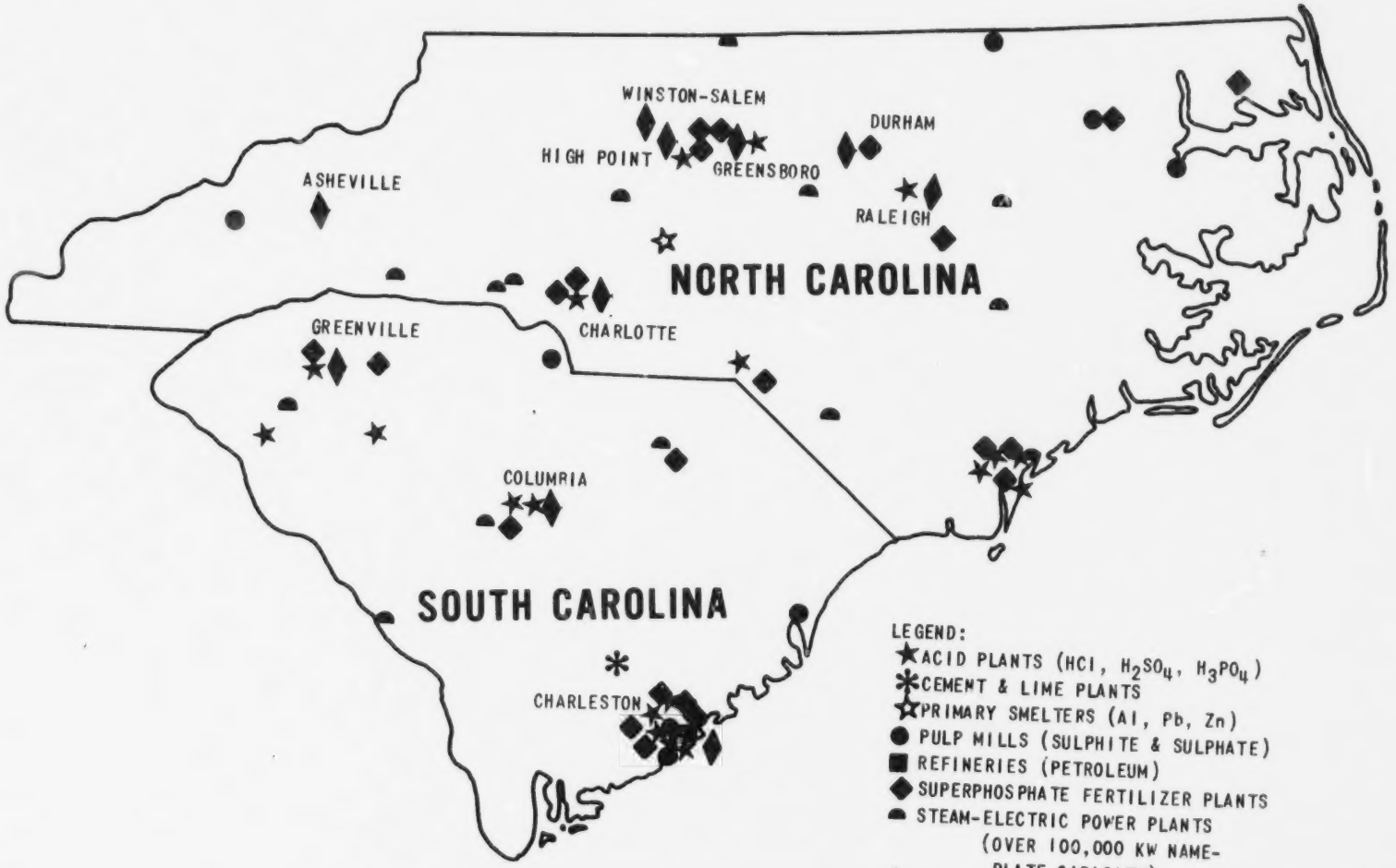
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAME-PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION
WHEELING
WILMINGTON
BALTIMORE
D.C.
DELAWARE
WEST VIRGINIA
HUNTINGTON
CHARLESTON
MARYLAND
ROANOKE
LYNCHBURG
RICHMOND
HAMPTON
NORFOLK
NEWPORT NEWS
PORTSMOUTH
VIRGINIA


WINSTON-SALEM
HIGH POINT
GREENSBORO
DURHAM
ASHEVILLE
RALEIGH
NORTH CAROLINA
GREENVILLE
CHARLOTTE
COLUMBIA
SOUTH CAROLINA
CHARLESTON
LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
PULP MILLS (SULPHITE & SULPHATE)
REFINERIES (PETROLEUM)
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STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAME-PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION

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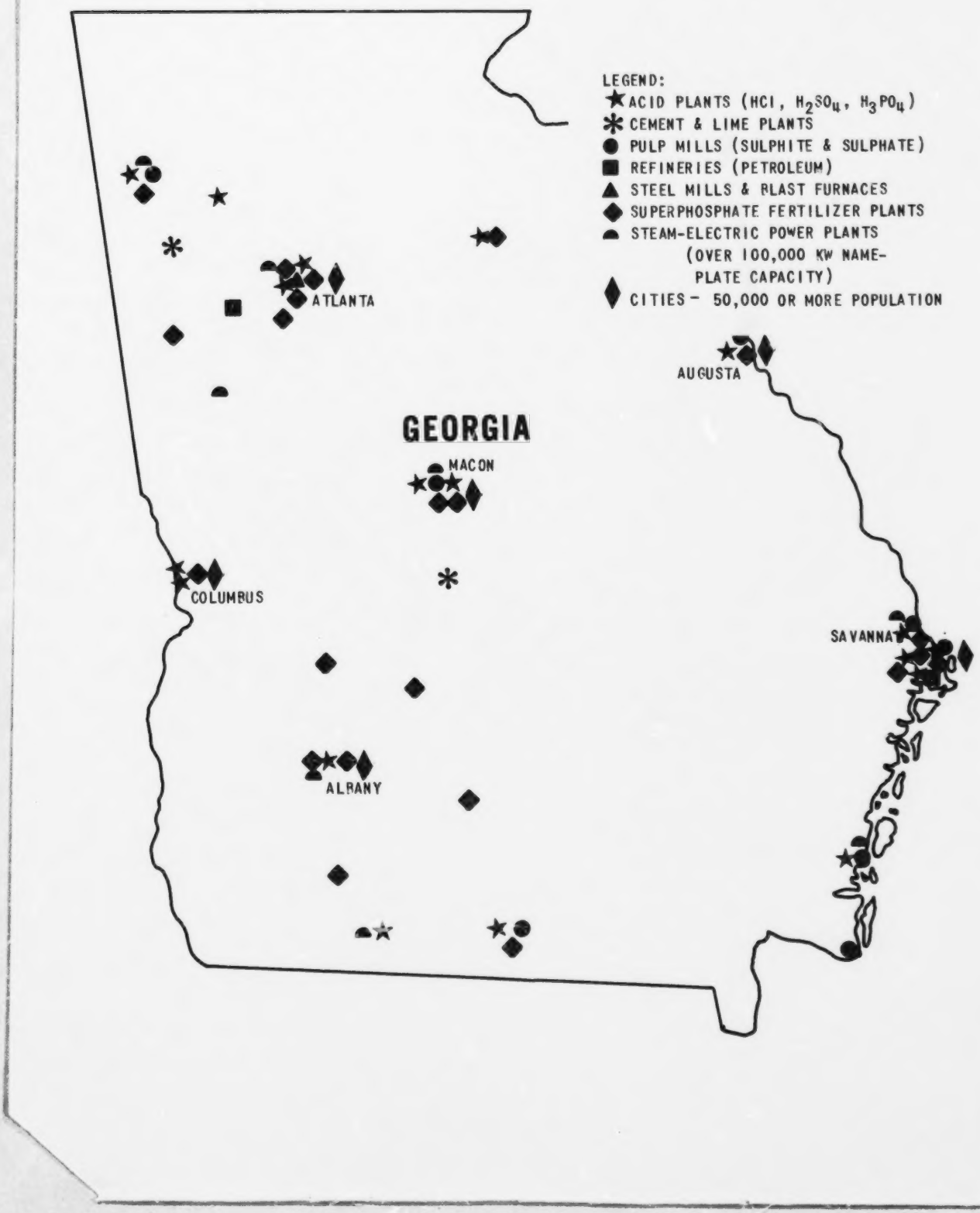
LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
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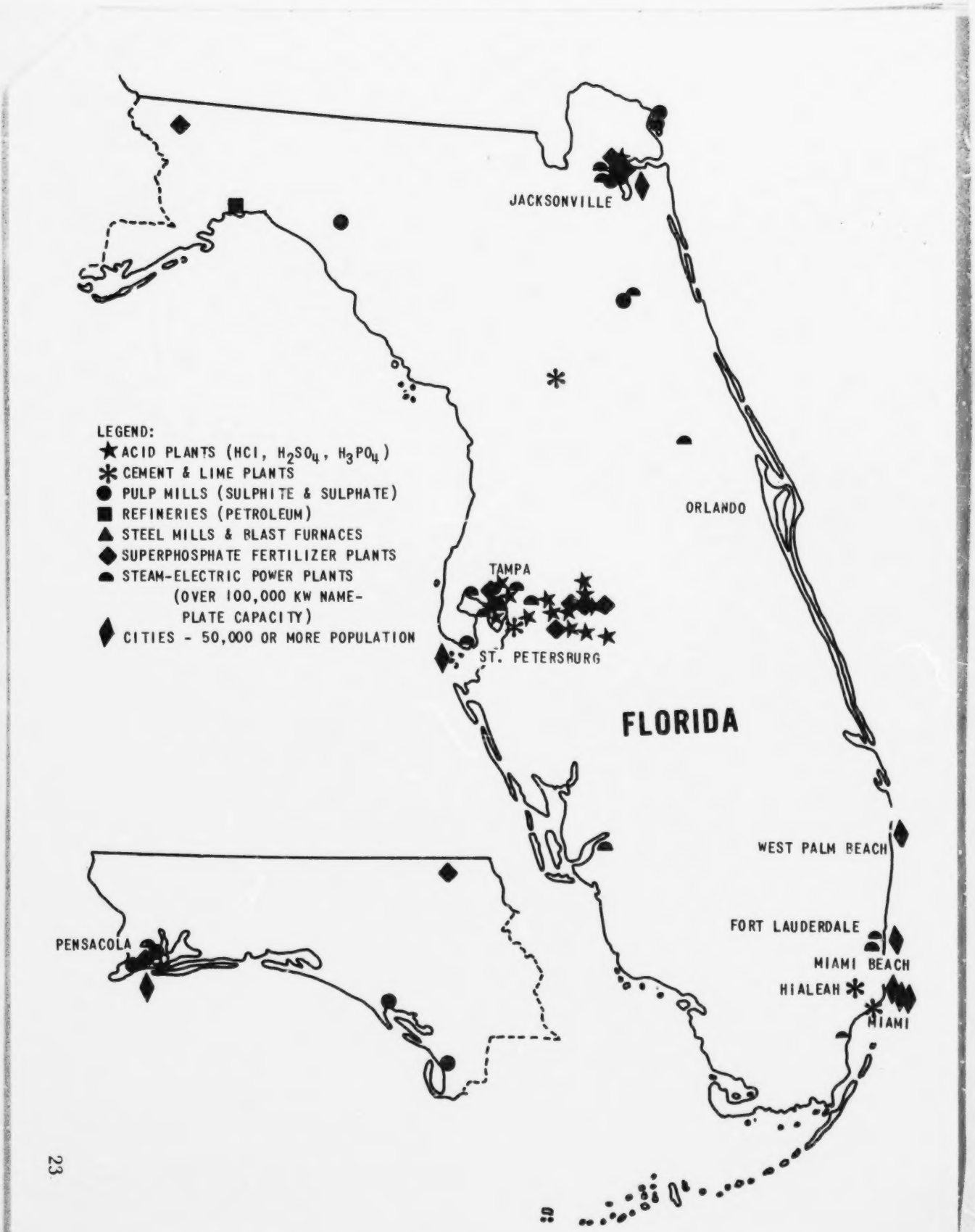
GEORGIA
ATLANTA
AUGUSTA
MACON
COLUMBUS
SAVANNAH
ALBANY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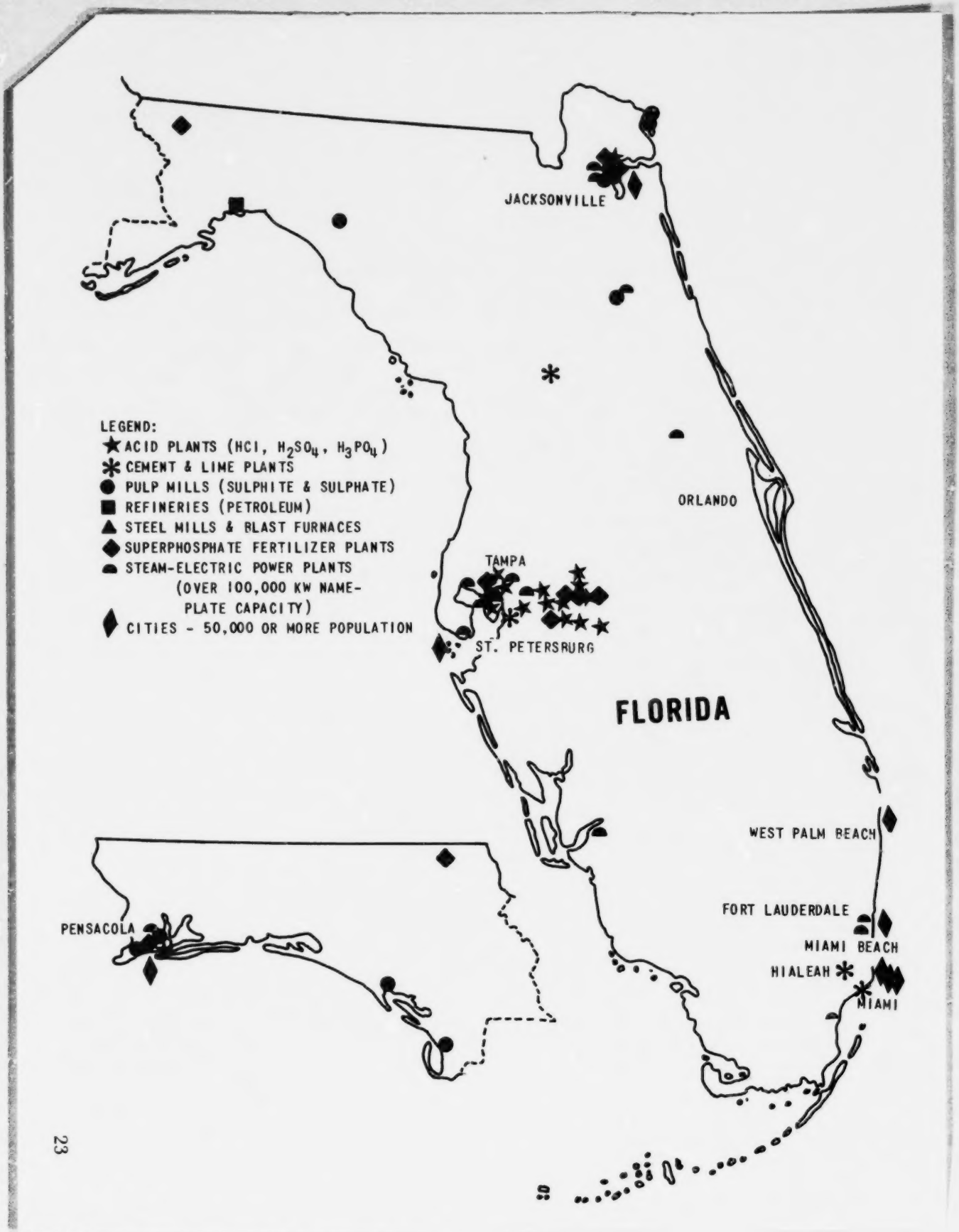
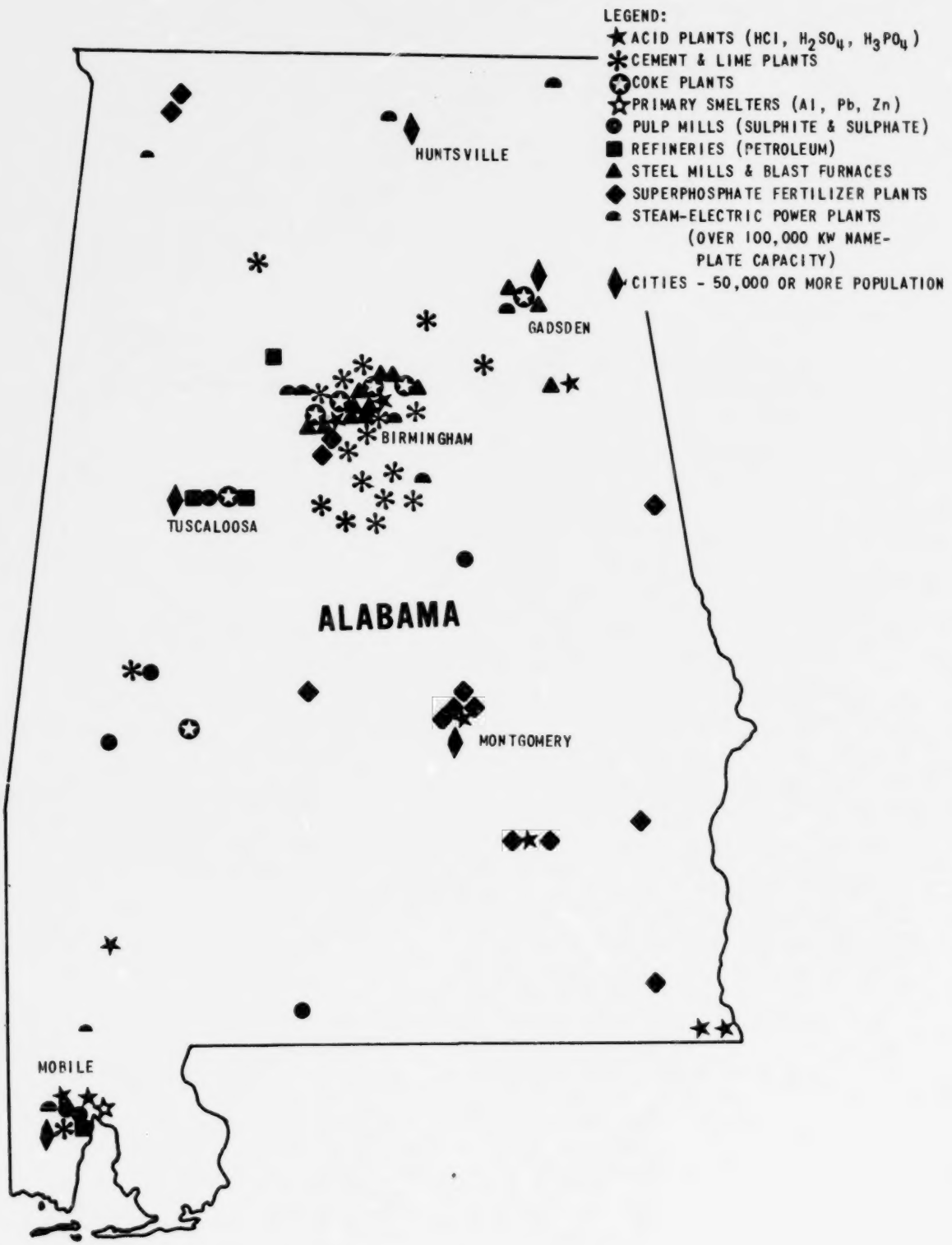
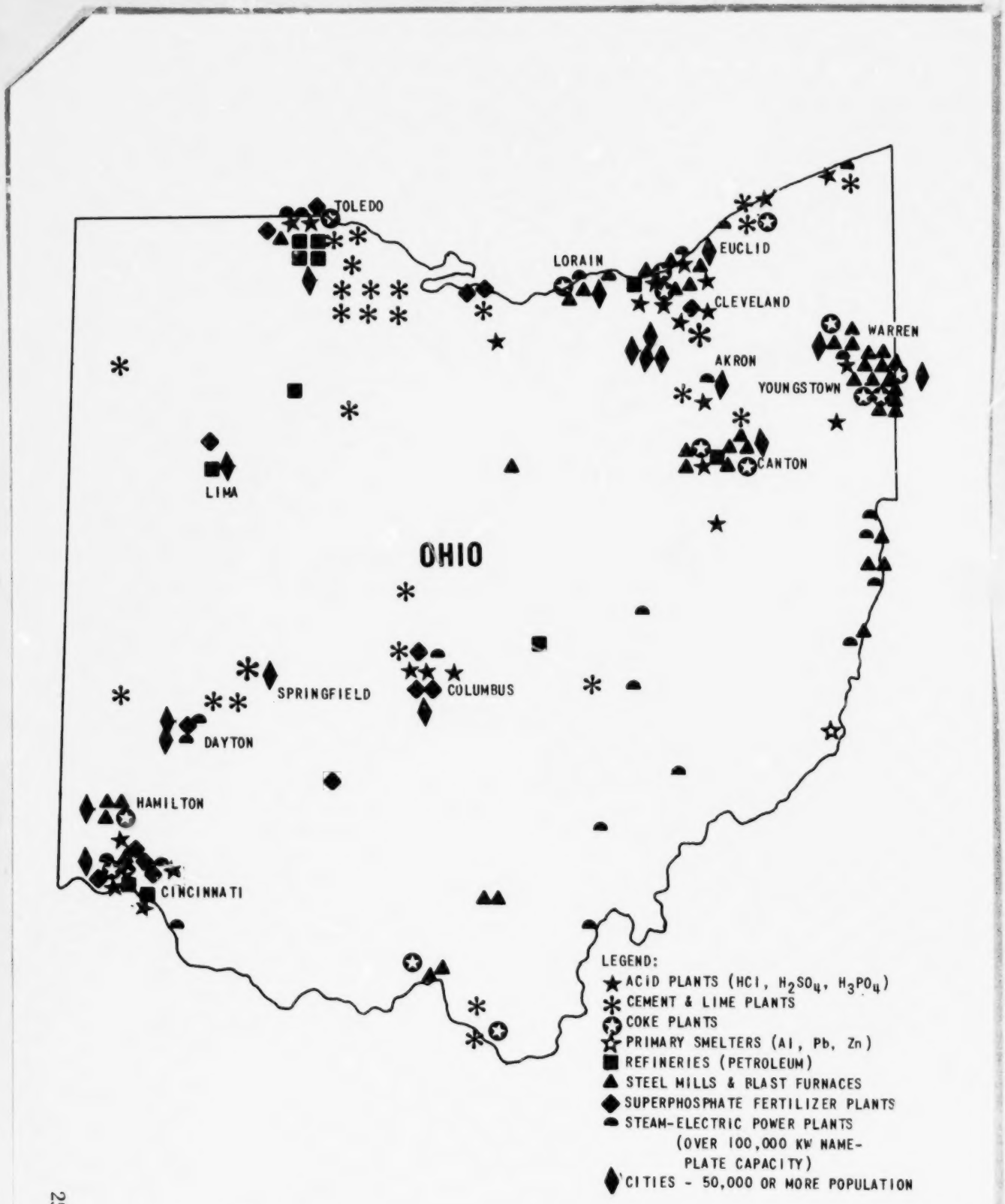
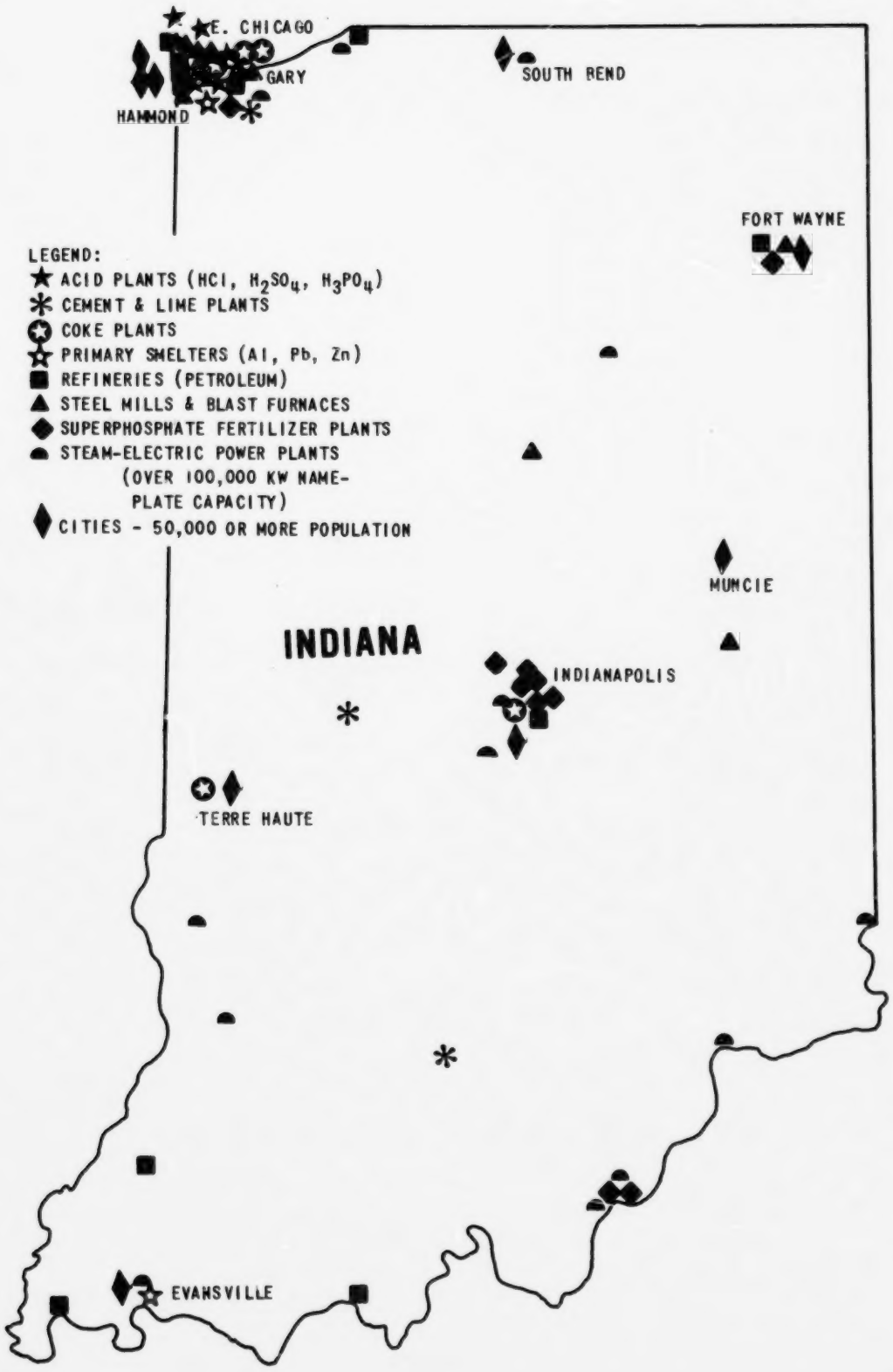
JACKSONVILLE
ORLANDO
TAMPA
ST. PETERSBURG
FLORIDA
WEST PALM BEACH
FORT LAUDERDALE
MIAMI BEACH
HIALEAH
MIAMI
PENSACOLA

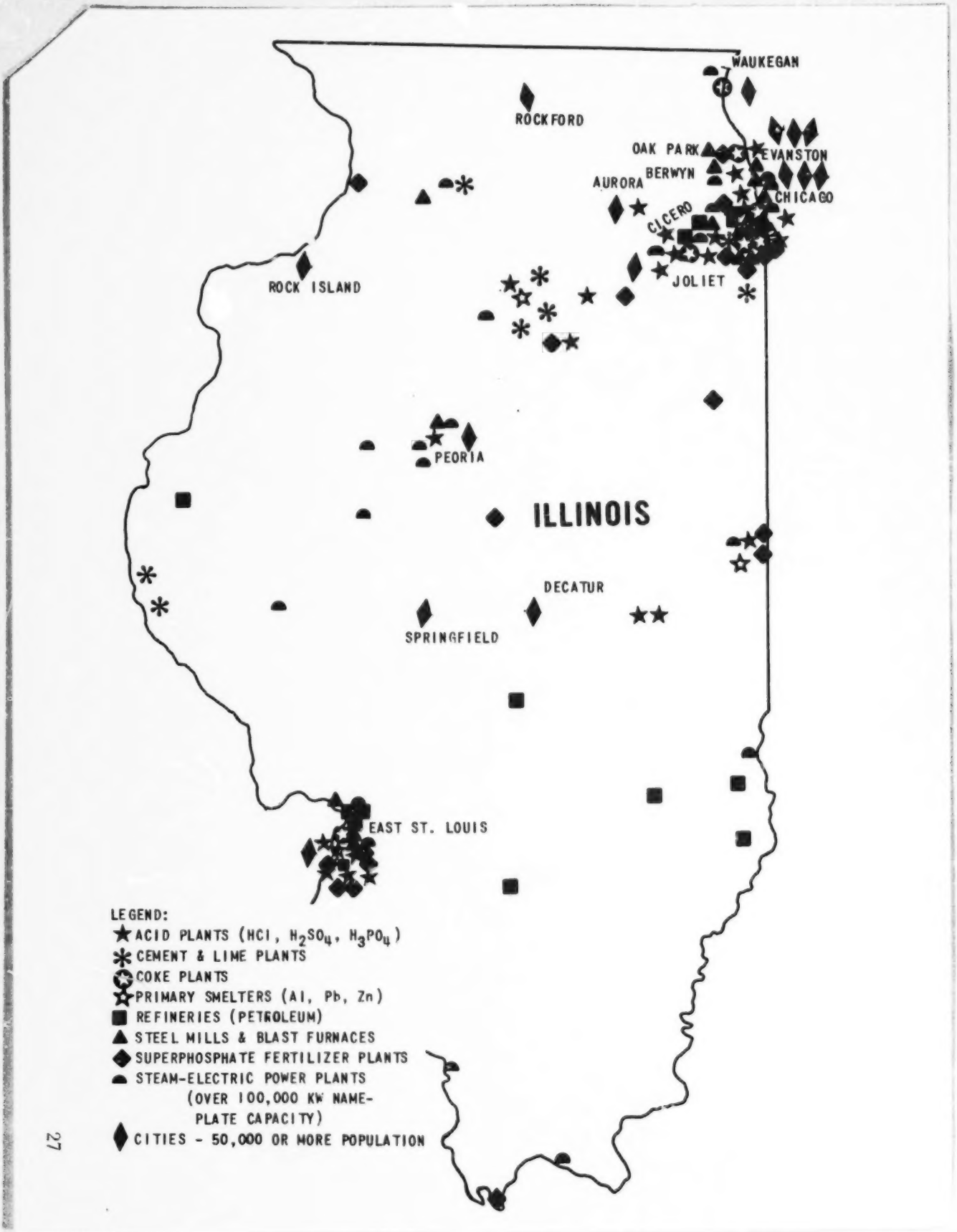

JACKSONVILLE
ORLANDO
TAMPA
ST. PETERSBURG
FLORIDA
WEST PALM BEACH
FORT LAUDERDALE
MIAMI BEACH
HIALEAH
MIAMI
PENSACOLA
LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
PULP MILLS (SULPHITE & SULPHATE)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAME-PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION

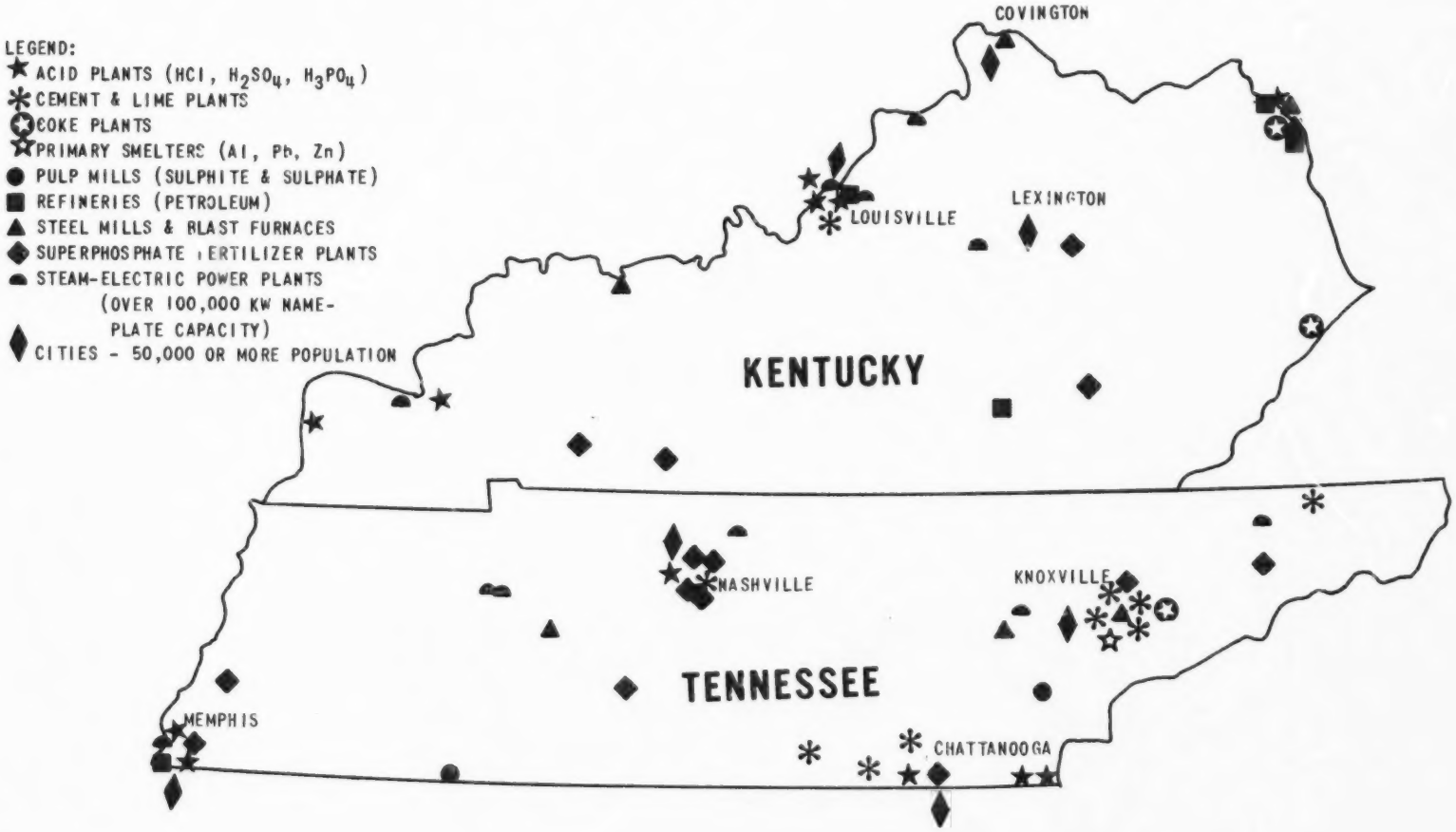

LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
COKE PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
PULP MILLS (SULPHITE & SULPHATE)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAME-PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION
HUNTSVILLE
GADSDEN
BIRMINGHAM
TUSCALOOSA
ALABAMA
MONTGOMERY
MOBILE


TOLEDO
LORAIN
EUCLID
CLEVELAND
WARREN
AKRON
YOUNGSTOWN
CANTON
LIMA
OHIO
SPRINGFIELD
COLUMBUS
DAYTON
HAMILTON
CINCINNATI
LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
COKE PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAME-PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION

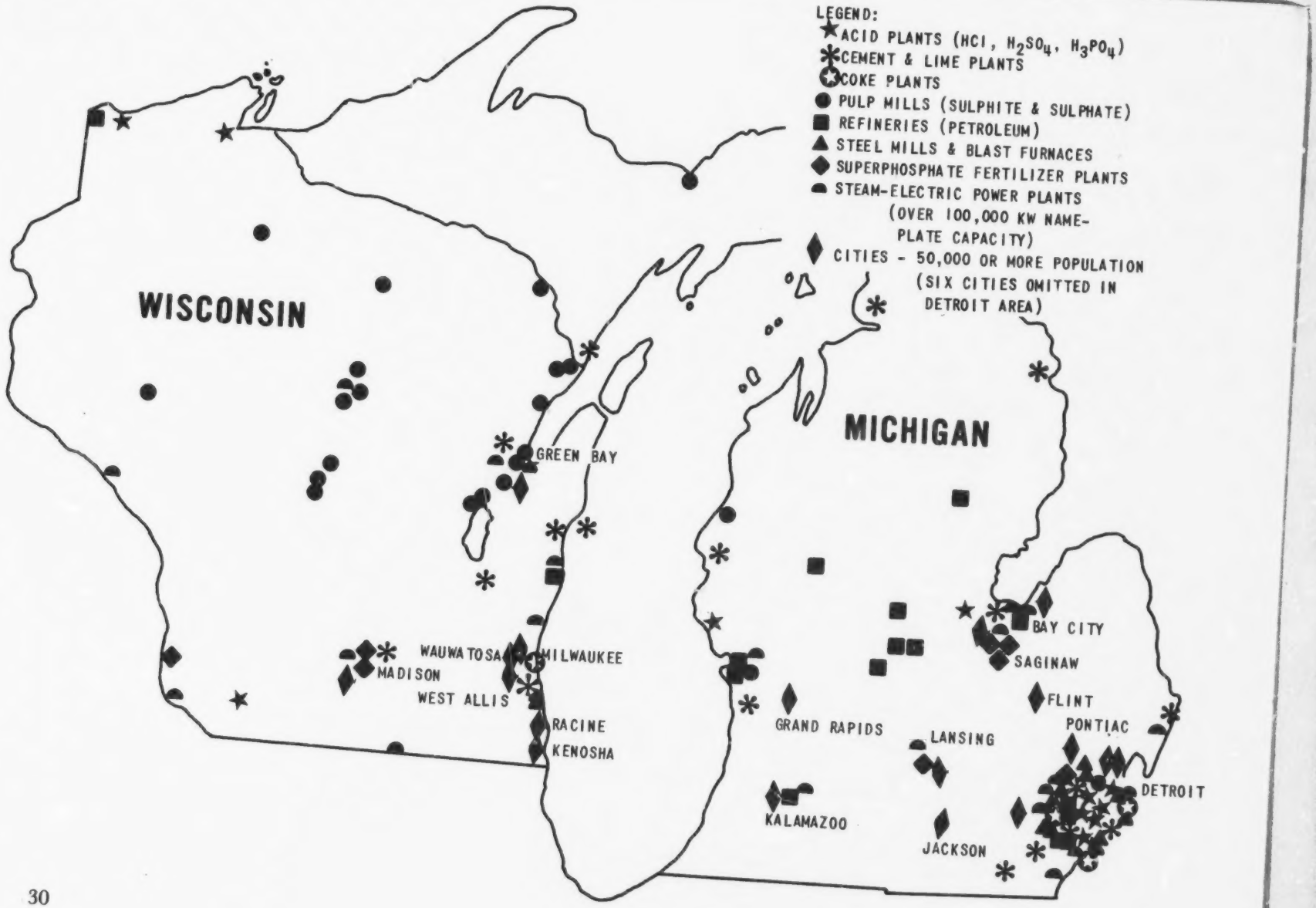

E. CHICAGO
GARY
HAMMOND
SOUTH BEND
FORT WAYNE
LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
COKE PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAME-PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION
MUNCIE
INDIANA
INDIANAPOLIS
TERRE HAUTE
EVANSVILLE

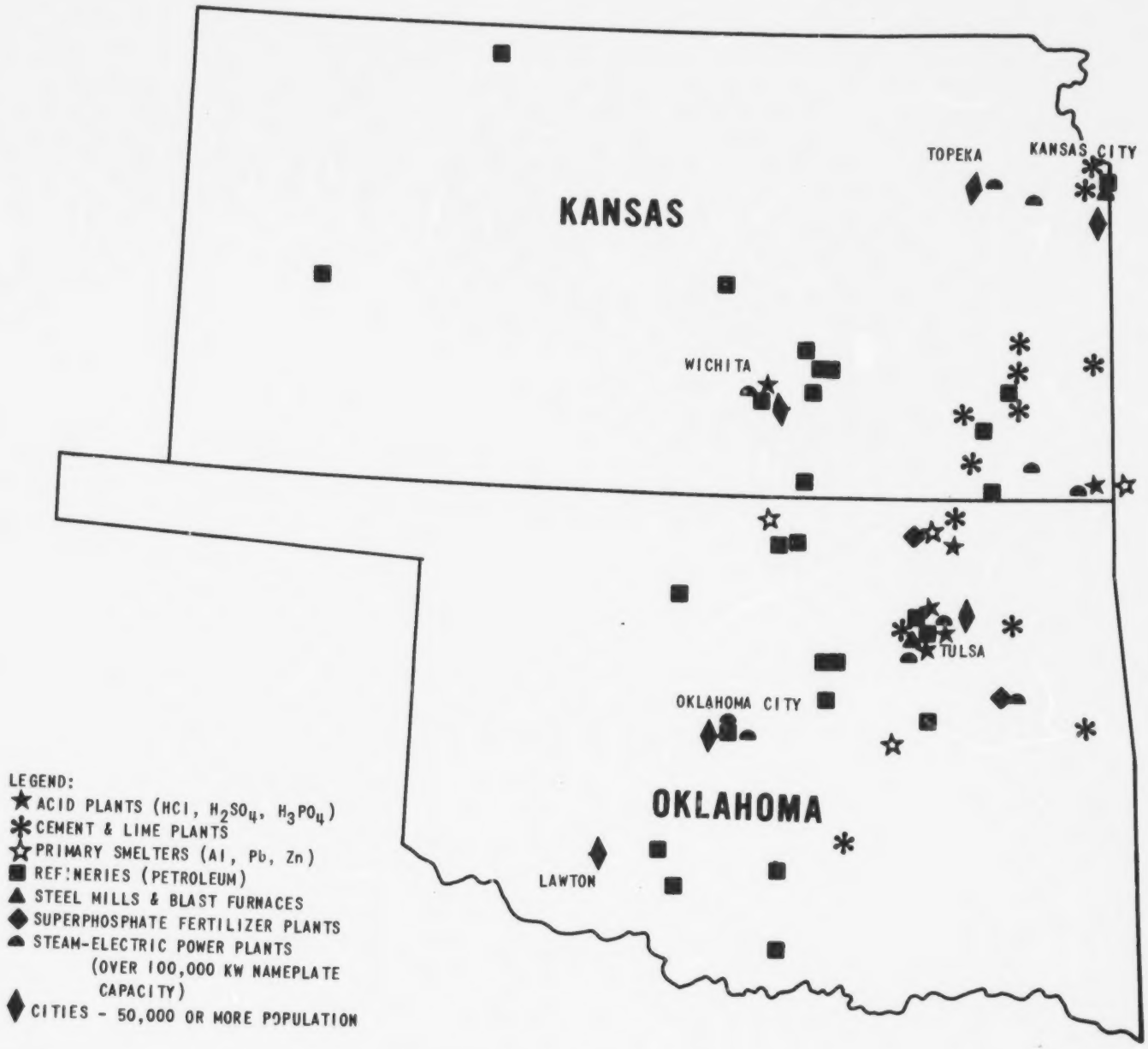
E. CHICAGO
GARY
HAMMOND
SOUTH BEND
FORT WAYNE
LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
COKE PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAME-PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION
MUNCIE
INDIANA
INDIANAPOLIS
TERRE HAUTE
EVANSVILLE

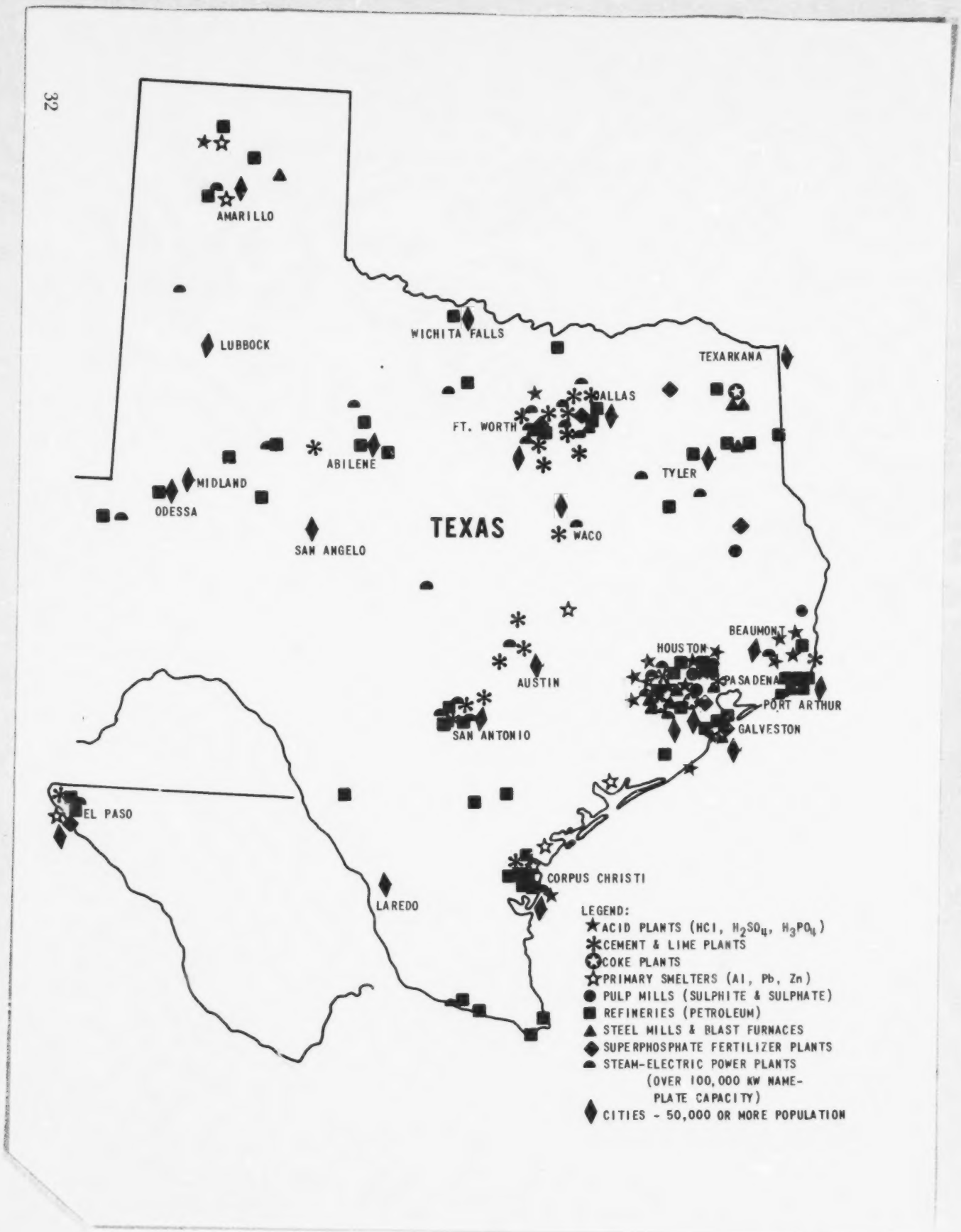

WAUKEGAN
ROCKFORD
OAK PARK
EVANSTON
AURORA
BERWYN
CHICAGO
CICERO
JOLIET
ROCK ISLAND
PEORIA
ILLINOIS
DECATUR
SPRINGFIELD
EAST ST. LOUIS
LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
COKE PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAMEPLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION

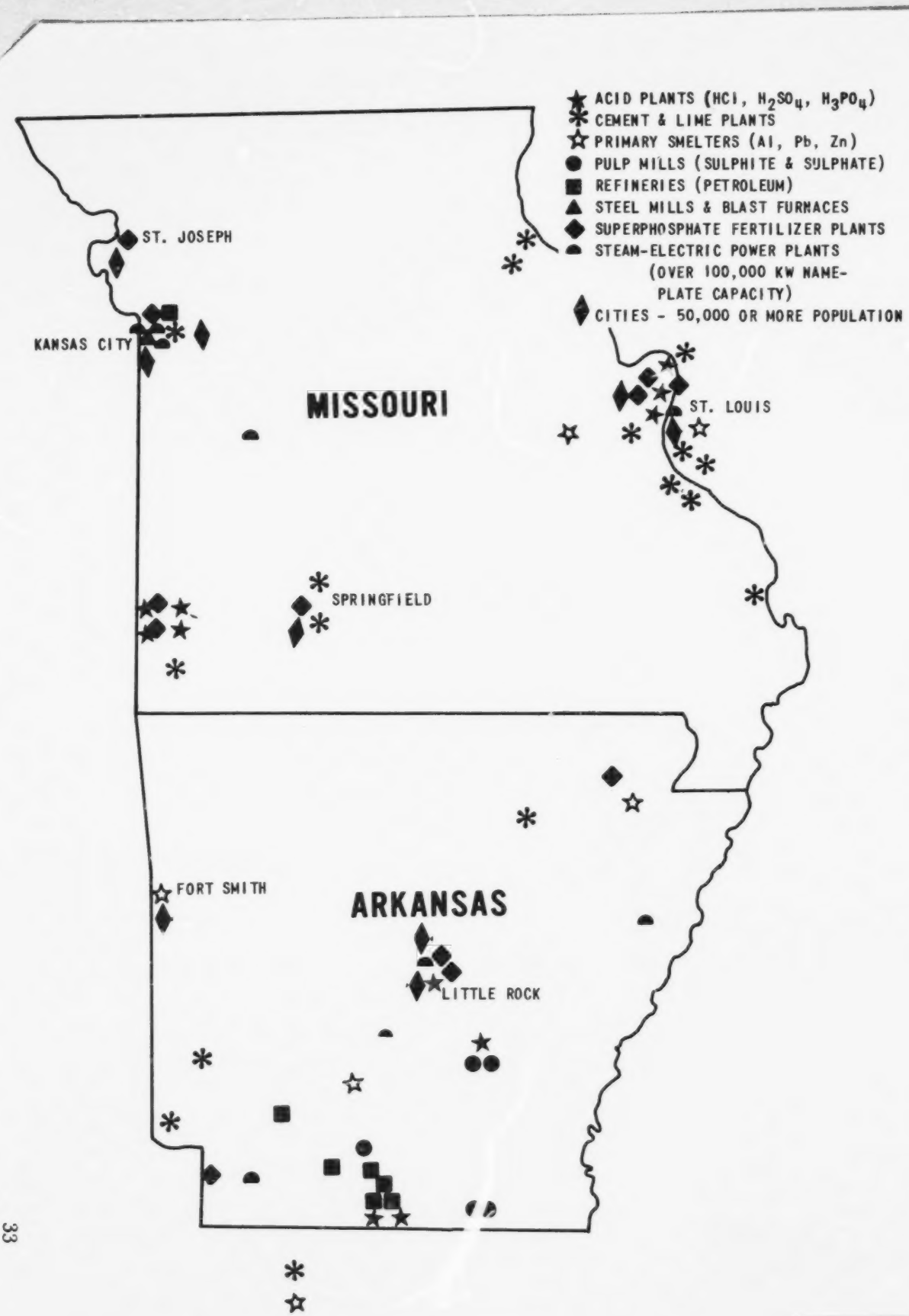

LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
COKE PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
PULP MILLS (SULPHITE & SULPHATE)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAME-PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION
COVINGTON
LOUISVILLE
LEXINGTON
KENTUCKY
NASHVILLE
KNOXVILLE
TENNESSEE
MEMPHIS
CHATTANOOGA

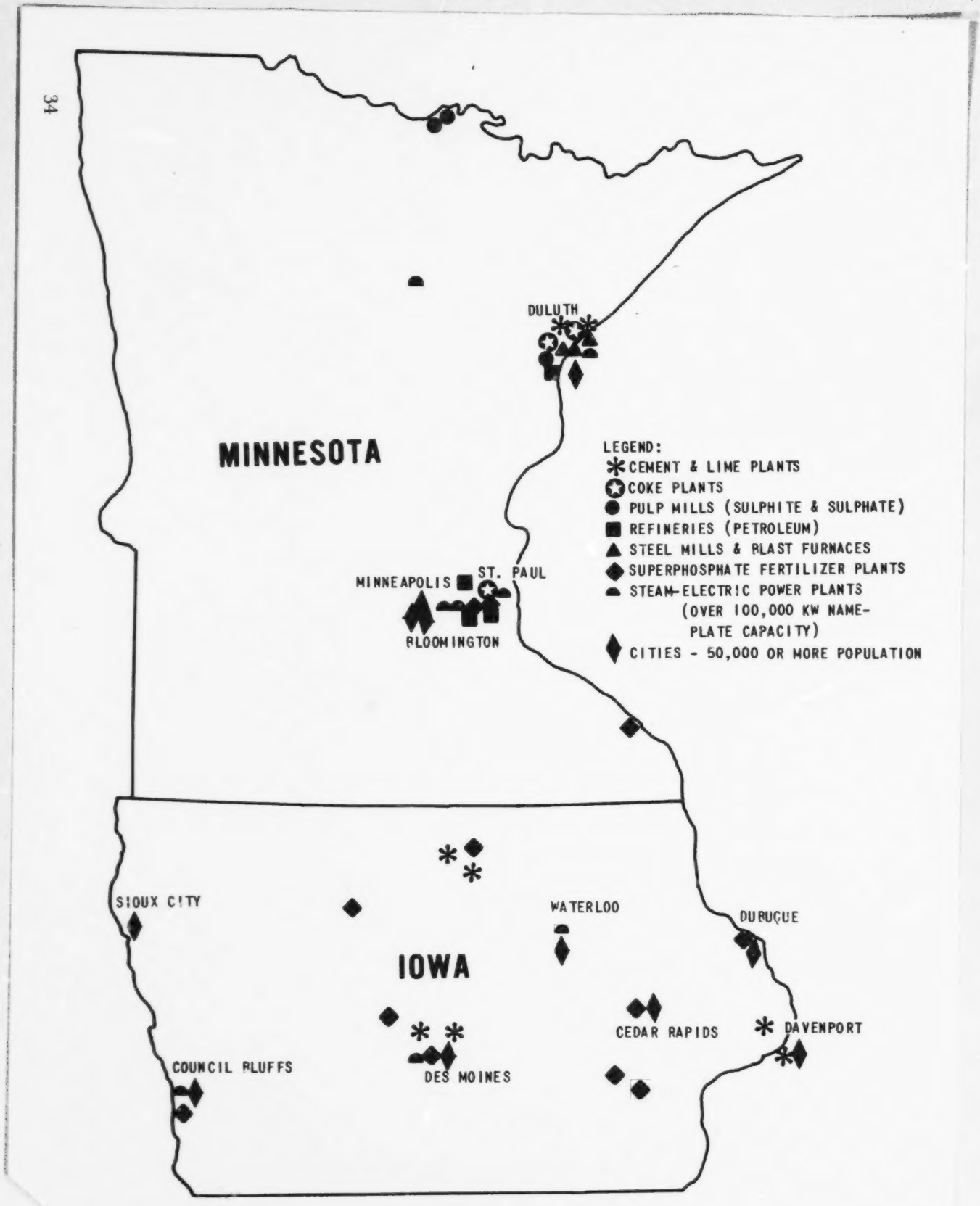
LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
PULP MILLS (SULPHITE & SULPHATE)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAME-PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION
MISSISSIPPI
LOUISIANA
SHREVEPORT
MONROE
JACKSON
BATON ROUGE
NEW ORLEANS
LAKE CHARLES

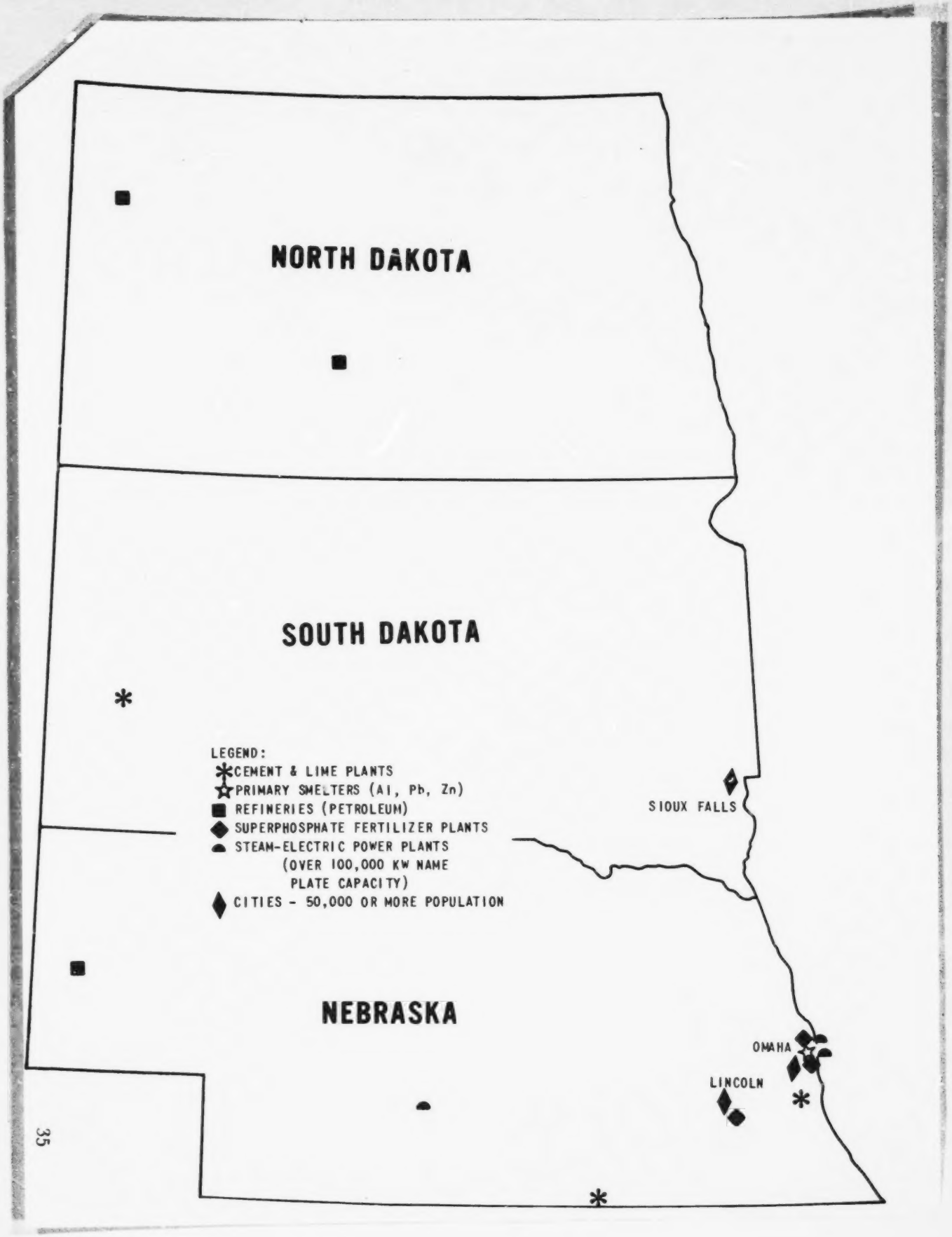

LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
COKE PLANTS
PULP MILLS (SULPHITE & SULPHATE)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAMEPLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION (SIX CITIES OMITTED IN DETROIT AREA)
WISCONSIN
MICHIGAN
GREEN BAY
WAUWATOSA
MILWAUKEE
MADISON
WEST ALLIS
RACINE
KENOSHA
BAY CITY
SAGINAW
FLINT
PONTIAC
GRAND RAPIDS
LANSING
DETROIT
KALAMAZOO
JACKSON

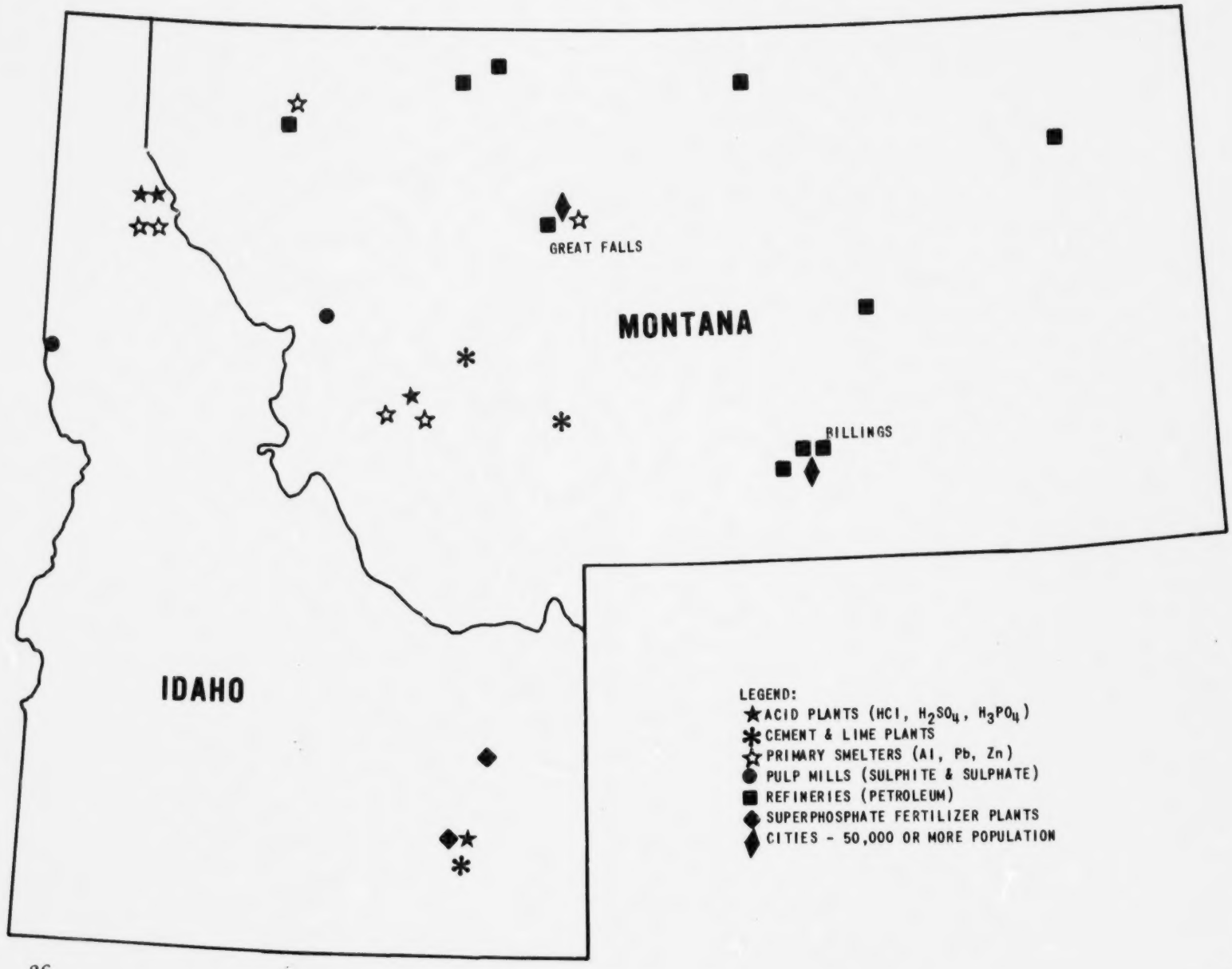

KANSAS
TOPEKA
KANSAS CITY
WICHITA
TULSA
OKLAHOMA CITY
OKLAHOMA
LAWTON
LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAMEPLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION

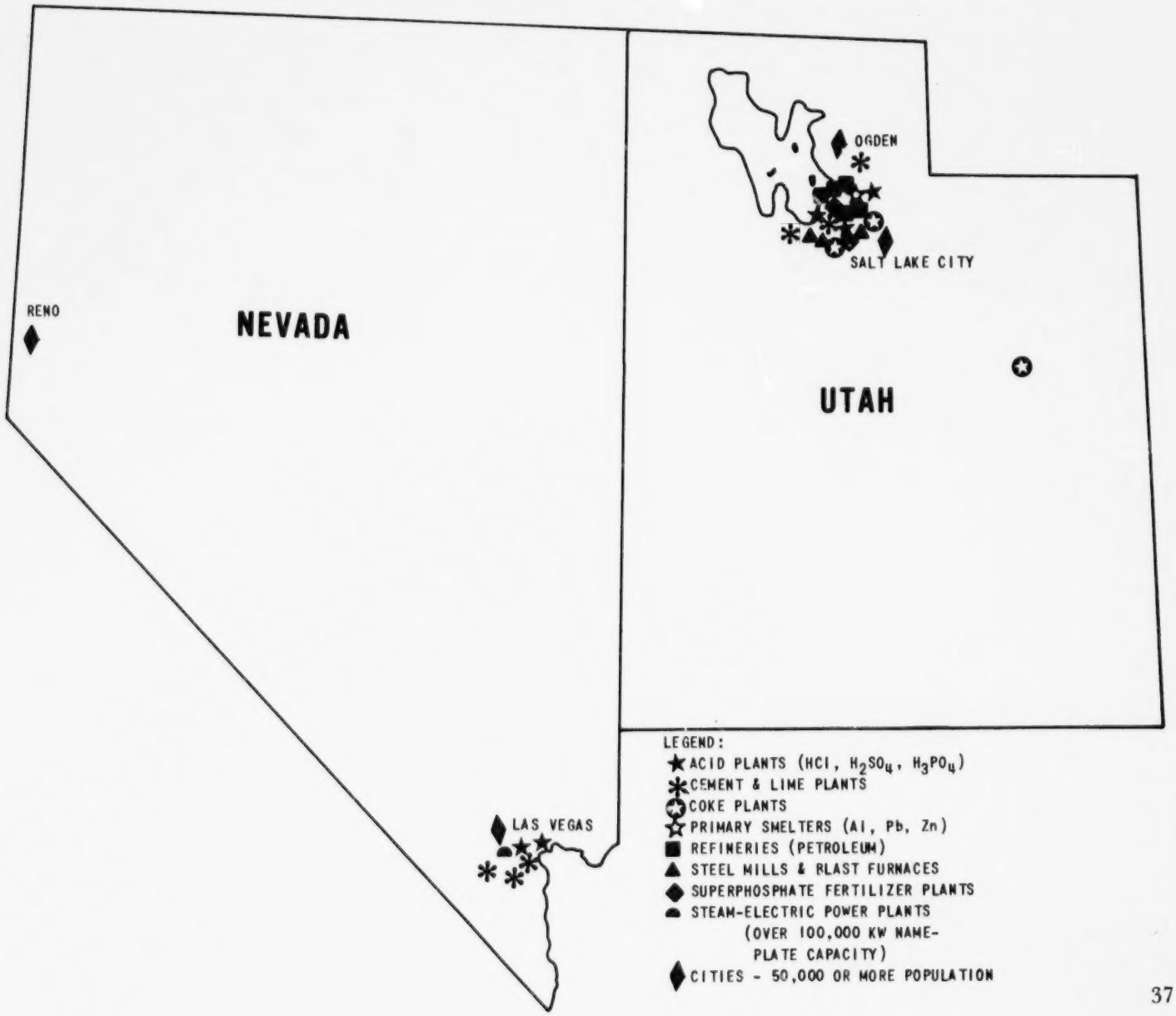

AMARILLO
LUBBOCK
WICHITA FALLS
TEXARKANA
DALLAS
FT. WORTH
ABILENE
TYLER
MIDLAND
ODESSA
TEXAS
WACO
SAN ANGELO
BEAUMONT
HOUSTON
AUSTIN
PASADENA
PORT ARTHUR
GALVESTON
SAN ANTONIO
EL PASO
CORPUS CHRISTI
LAREDO
LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
COKE PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
PULP MILLS (SULPHITE & SULPHATE)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAME-PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION

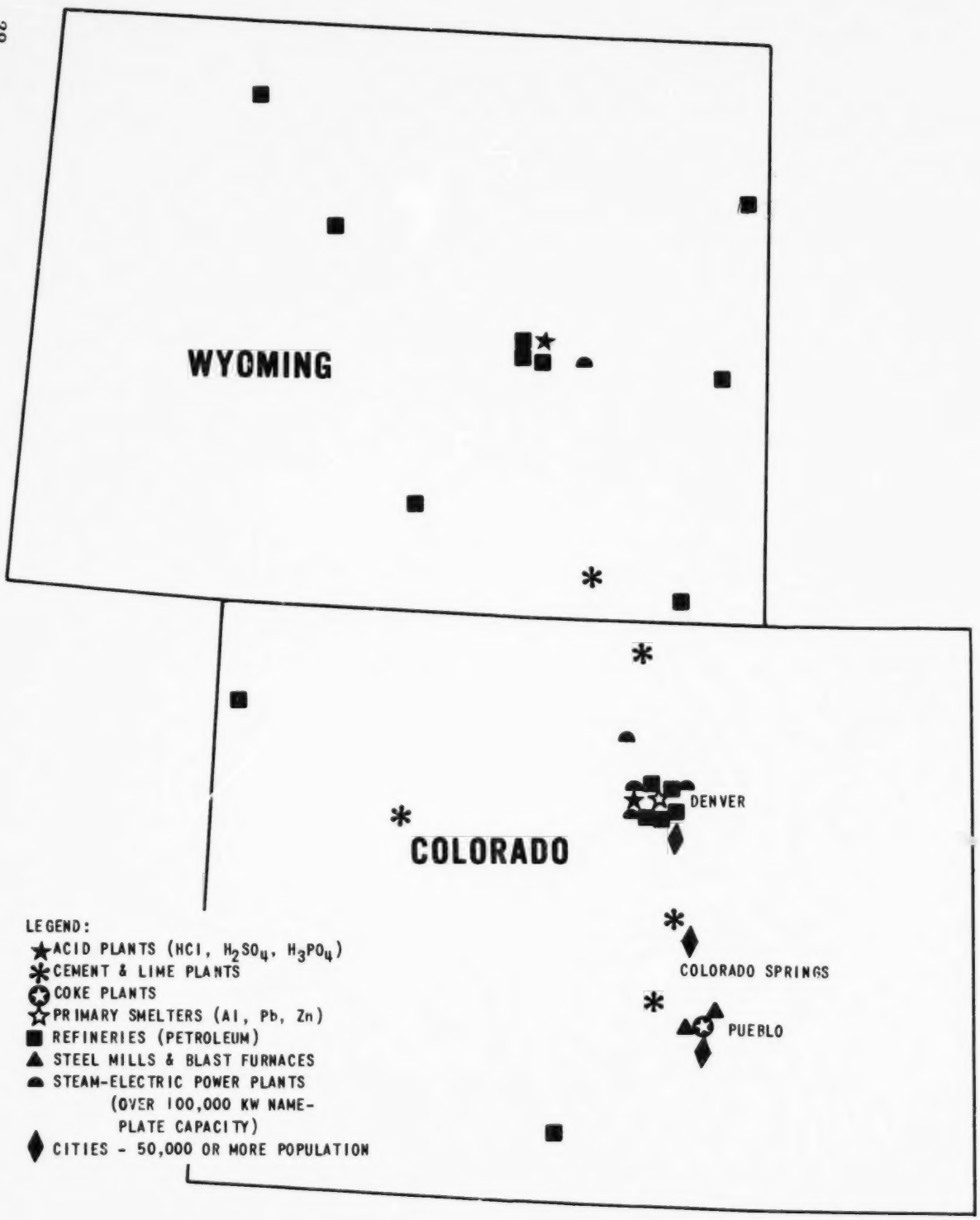

ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
PULP MILLS (SULPHITE & SULPHATE)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAME-PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION
ST. JOSEPH
KANSAS CITY
MISSOURI
ST. LOUIS
SPRINGFIELD
FORT SMITH
ARKANSAS
LITTLE ROCK

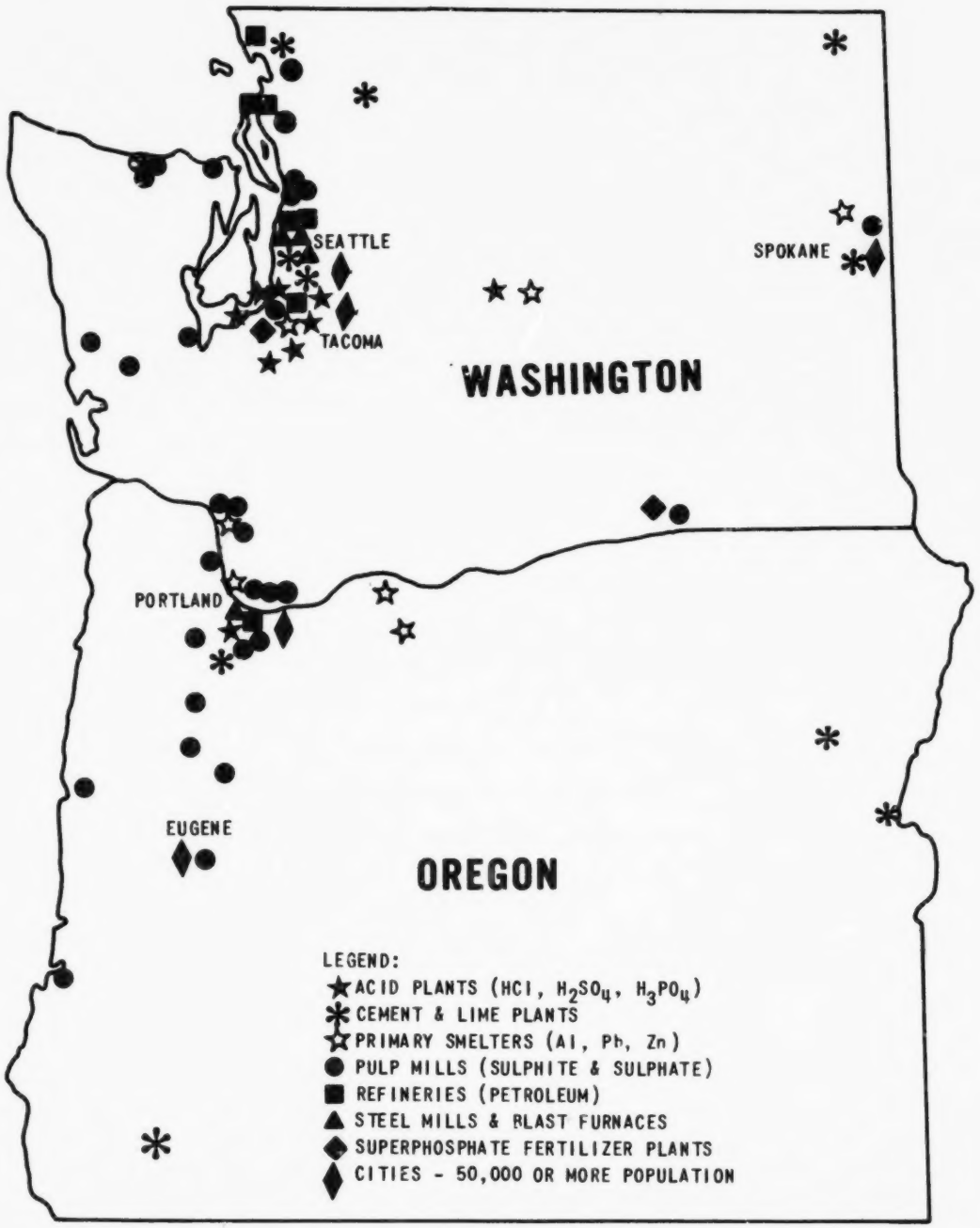

DULUTH
MINNESOTA
LEGEND:
CEMENT & LIME PLANTS
COKE PLANTS
PULP MILLS (SULPHITE & SULPHATE)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAME-PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION
MINNEAPOLIS
ST. PAUL
BLOOMINGTON
SIOUX CITY
WATERLOO
DUBUQUE
IOWA
CEDAR RAPIDS
DAVENPORT
COUNCIL BLUFFS
DES MOINES


NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
LEGEND:
CEMENT & LIME PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
REFINERIES (PETROLEUM)
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAME PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION
SIOUX FALLS
OMAHA
LINCOLN


GREAT FALLS
MONTANA
BILLINGS
IDAHO
LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
PULP MILLS (SULPHITE & SULPHATE)
REFINERIES (PETROLEUM)
SUPERPHOSPHATE FERTILIZER PLANTS
CITIES - 50,000 OR MORE POPULATION

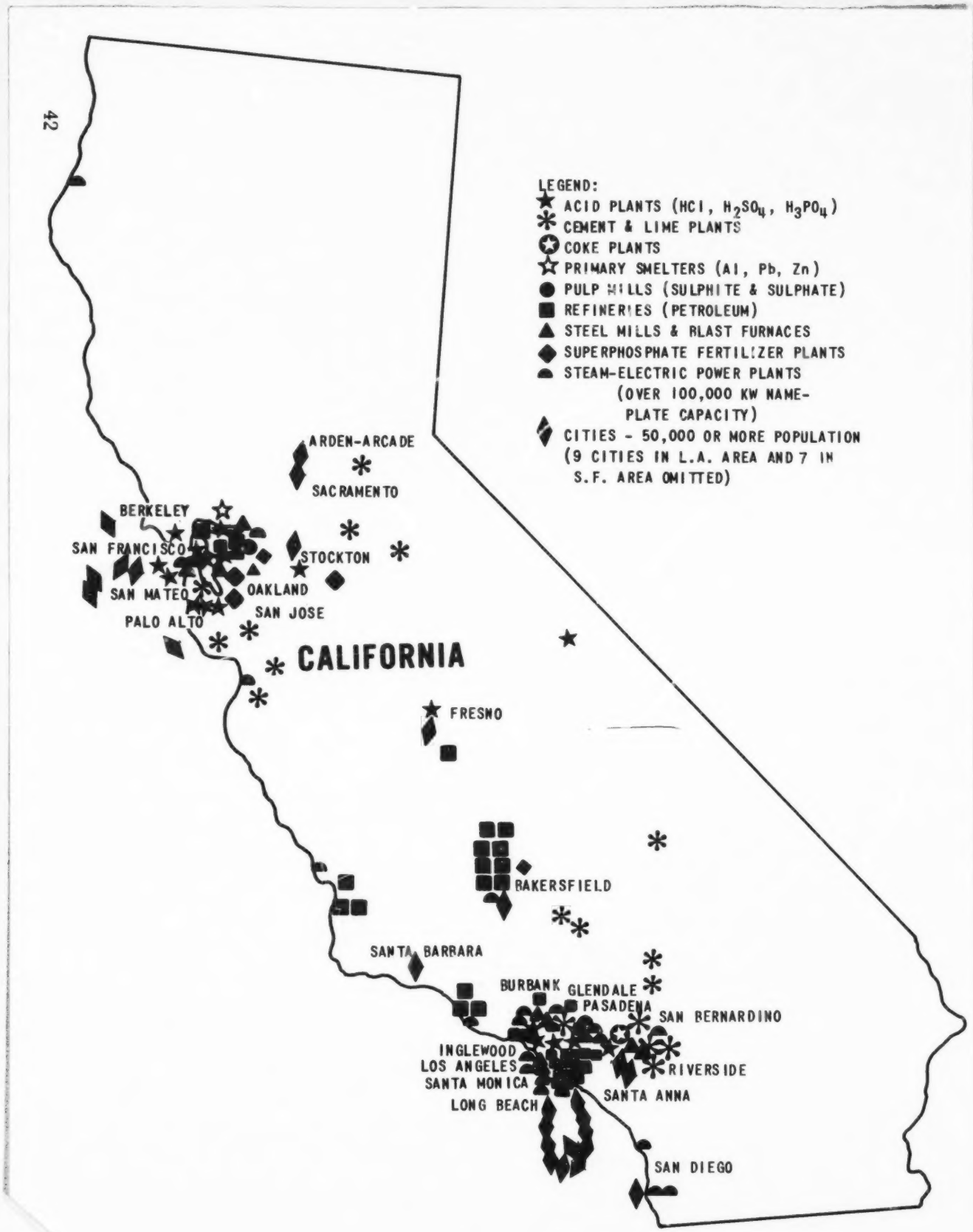

OGDEN
SALT LAKE CITY
RENO
NEVADA
UTAH
LAS VEGAS
LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
COKE PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAME-PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION


WYOMING
COLORADO
DENVER
COLORADO SPRINGS
PUEBLO
LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
COKE PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAME-PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION


SEATTLE
TACOMA
SPOKANE
WASHINGTON
PORTLAND
EUGENE
OREGON
LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
PULP MILLS (SULPHITE & SULPHATE)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
CITIES - 50,000 OR MORE POPULATION

ARIZONA
NEW MEXICO
PHOENIX
TUCSON
ALBUQUERQUE
LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
REFINERIES (PETROLEUM)
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (over 100,000 KW NAME-PLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION

HONOLULU
HAWAII
ALASKA
LEGEND:
CEMENT & LIME PLANTS
PULP MILLS (SULPHITE & SULPHATE)
REFINERIES (PETROLEUM)
CITIES - 50,000 OR MORE POPULATION


LEGEND:
ACID PLANTS (HCl, H_2SO_4, H_3PO_4)
CEMENT & LIME PLANTS
COKE PLANTS
PRIMARY SMELTERS (Al, Pb, Zn)
PULP MILLS (SULPHITE & SULPHATE)
REFINERIES (PETROLEUM)
STEEL MILLS & BLAST FURNACES
SUPERPHOSPHATE FERTILIZER PLANTS
STEAM-ELECTRIC POWER PLANTS (OVER 100,000 KW NAMEPLATE CAPACITY)
CITIES - 50,000 OR MORE POPULATION (9 CITIES IN L.A. AREA AND 7 IN S.F. AREA OMITTED)
ARDEN-ARCADE
SACRAMENTO
BERKELEY
SAN FRANCISCO
STOCKTON
SAN MATEO
OAKLAND
SAN JOSE
PALO ALTO
CALIFORNIA
FRESNO
BAKERSFIELD
SANTA BARBARA
BURBANK
GLENDALE
PASADENA
SAN BERNARDINO
INGLEWOOD
LOS ANGELES
SANTA MONICA
LONG BEACH
RIVERSIDE
SANTA ANNA
SAN DIEGO

The Nation's air pollution problem:

What we need to do about it . . .

CITY, COUNTY, AND REGIONAL AIR POLLUTION CONTROL ACTIVITIES NEED EXPANSION

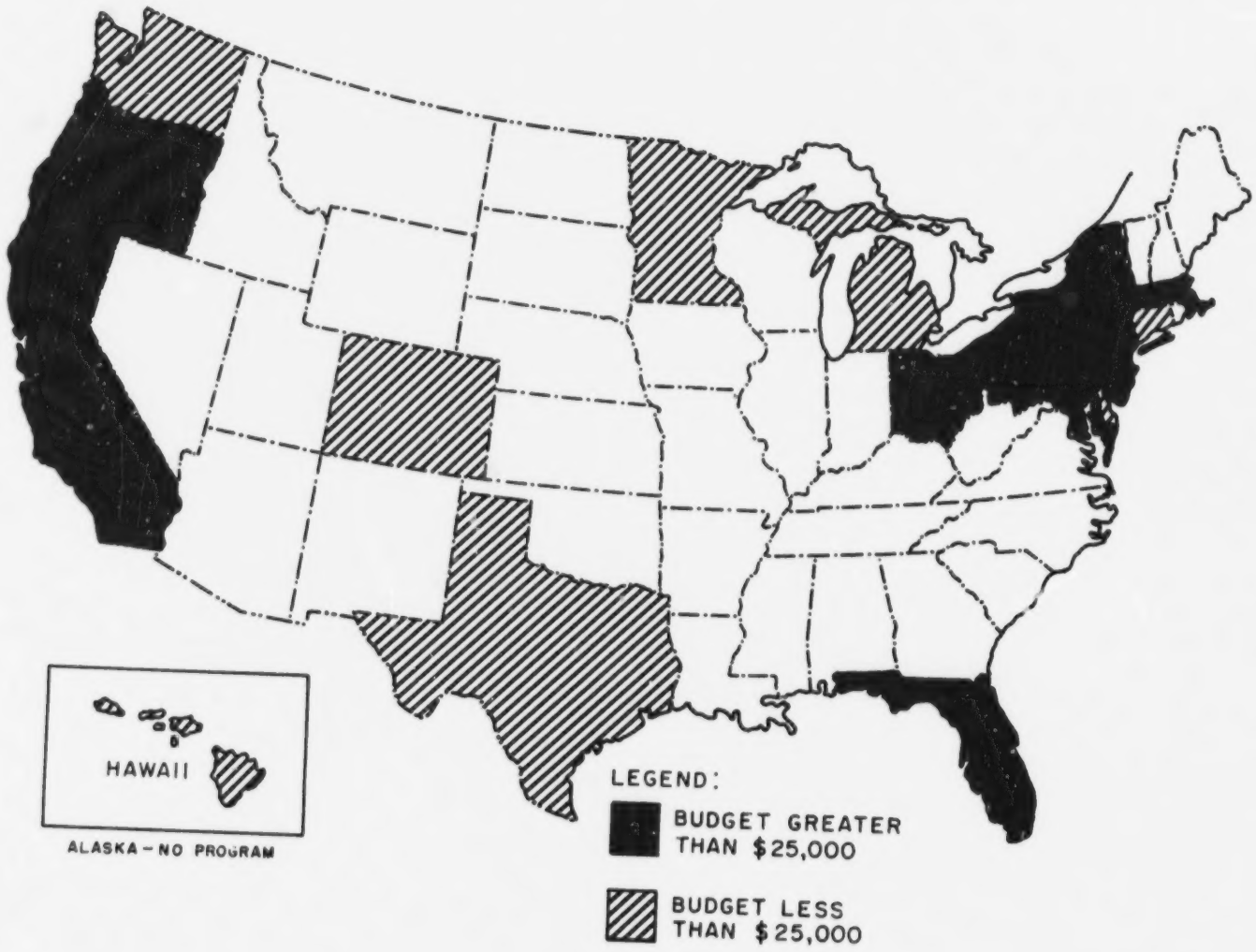
Although the key to air pollution control is effective action at the local level, only 34 local governmental air pollution control agencies have annual budgets of $25 thousand or more; fewer than 1000 people are employed by all local governments to control their air pollution problems; and only 13 air pollution control agencies employ more than 10 people. About 200 cities with populations over 50,000 are considered to have air pollution problems, but only approximately half of them have an air pollution control program—and many of these programs are seriously understaffed.

LOCAL AIR POLLUTION AGENCIES IN THE U.S.
(WITH ANNUAL BUDGET OF $5000 OR MORE; FEB. 1961)

STATE AIR POLLUTION PROGRAMS MUST BE STRENGTHENED

Of the more than $2 million all 50 States spent for air pollution control in 1961, more than $1 million was spent by only one State, California. In 1947, California adopted a law enabling counties to establish air pollution districts. Oregon, in 1951, adopted a law creating an air pollution study and control program. Today, most States have air pollution legislation of some kind. However, only 17 States now spend more than $5000 each year for their air pollution programs; only 9 States spend $25,000 or more. And only approximately 150 people are employed by all State governments to combat their air pollution problems. State activities must be greatly accelerated if all citizens are to enjoy clean air.

STATE AIR POLLUTION PROGRAMS - 1961



FEDERAL BACK-UP OF STATE AND LOCAL AIR POLLUTION PROGRAMS MUST BE CONTINUED

Research

Federal activities in air pollution are directed toward research, technical assistance, training, and the dissemination of information as authorized in Public Law 761, 87th Congress. The U.S. Public Health Service conducts research on causes, sources, control, and effects of air pollution, and supports air pollution investigations by other Federal agencies, including the Bureau of Mines of the Department of the Interior; the National Bureau of Standards and the U.S. Weather Bureau, of the Department of Commerce; the Library of Congress; the Department of Agriculture; and the Tennessee Valley Authority.

The Public Health Service research grant program supports air pollution research in the biomedical and physical sciences in universities and research institutes.

Technical Assistance

An important part of the program of the Public Health Service's Division of Air Pollution consists of technical assistance to State and local agencies. Technical assistance covers a wide range of activities including surveys to assess the nature and extent of the air pollution problem and recommendations for the solution of specific local problems. Since an air pollution problem may be widespread, many communities are potential recipients for some form of technical assistance. Representatives of the Public Health Service are assigned to regional offices of the U.S. Department of Health, Education, and Welfare so that they may provide immediate assistance to local agencies.

FEDERAL GOVERNMENT AIR POLLUTION ACTIVITIES

Training

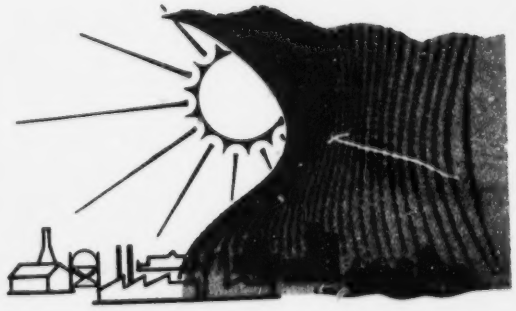
Personnel working in the field of air pollution must be drawn from a wide variety of disciplines. In many cases formal training in the methodology and techniques peculiar to air pollution activities are required above and beyond initial disciplinary preparation. The U.S. Public Health Service provides training grants to schools of engineering and public health for the support of graduate teaching in air pollution and to support trainees in some of these institutions. The Air Pollution Training Activity of the Service's Division of Air Pollution designs and presents short-term technical courses based on the needs of professional people at the point of practical application.

FEDERAL AIR POLLUTION SUPPORT

	1956	*1957*	*1958*	*1959*	*1960*	*1961*	*1962*	*1963*
Research	$1,516,000	$2,156,000	$3,120,000	$3,136,000	$4,552,600	$6,260,300	$7,561,000	$9,637,000
Training	40,000	134,000	305,000	236,500	251,500	346,200	371,000	750,000
Operations	166,000	400,000	570,000	487,500	396,500	450,600	582,000	682,000
Total	1,722,000	2,740,000	3,995,000	3,860,000	5,200,600	7,057,100	8,514,000	11,069,000

EFFECTIVE AIR POLLUTION CONTROL IS EVERYONE'S RESPONSIBILITY

No segment of American life, in fact no person can escape a responsibility for the control of air pollution. The industrial community, government at all levels, centers of research and learning—all have major and necessary roles to play. And so does the private citizen, for it is he who must see to it that his State and local governments adopt and vigorously enforce programs of air pollution control commensurate with the problem. Air pollution, a national problem, is also a national responsibility.



U.S. GOVERNMENT PRINTING OFFICE : 1962 OP—662650